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THE AUTOMOBILE

5th Annual AAA Reliability Tour Wends Its Way Eastward

Where the Start Was Made In Front of the Headquarters of the A. A. A. Touring Board, and Automobile Club of Buffalo.

CAMBRIDGE SPRINGS, PA., July 9.—Seated upon the verandas of a commodious and urban appointed hostelry set upon a hill with a wide prospect of hills and meadows, 300 well contented Gliddenites and Howermen are discussing to-night with satisfaction the outcome of the first day's run of the fifth annual A. A. A. test tour. Forty-six cars contesting for the touring car and runabout trophies and 10 non-competing and official cars had left Buffalo in the morning and had reached Cambridge Springs with the loss of but one of their number—a six-cylinder Gearless runabout, which had collided with a telegraph pole at Westfield, lost all its Hower trophy points, and, in fact, had put itself out of the running for good and all.

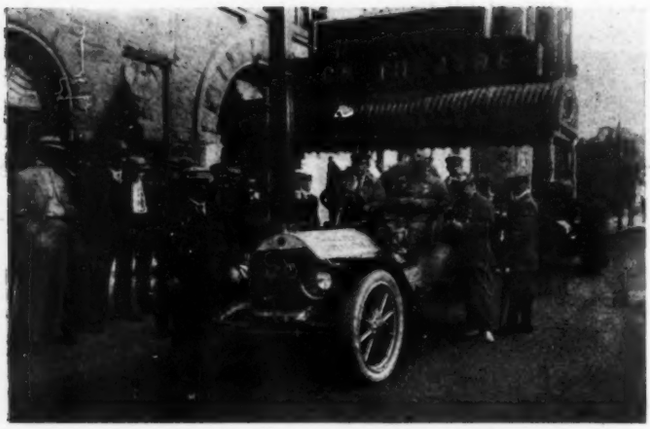
All of the other 45 prize contenders had evolved from the day's run without penalization, having made the 117.4 miles run in the 5 hours, 45 minutes schedule time and without any replacement of parts. Had the boss of the run, however, not been a bit lenient, under the rules there would have been several sufferers from too eager promptness or too cautious tardiness in crossing the finish line. The new rules with their allowances for tire repairs and price difference, bothered some a bit, so Chairman Hower cancelled all errors, since the cars were really all on schedule time, but warned all hands that in future ignorance of the law would excuse no one. It took a lot of time and explaining at the daily evening meeting of contestants and observers to get the new rules fixed in all minds. It is to be hoped at least that they are or there will be trouble brewing.

The legal speed limit schedule of 20 miles per hour had been easy to maintain with 56 miles of macadam between Silver Creek and Erie, and the balance of the way at either end of this magnificent stretch over fair country dirt road, is for the most part over fairly level ground.

Buffalo gave the caravan a rousing send-off. For half a mile from the starting point, the street was a continuous grandstand of automobiles on either curb and fully five thousand foot passengers joined in the *bon voyage*. The first car was sent away promptly at 10 o'clock from the Automobile Club of Buffalo, in the Teck Theater building, and the 45 others at one minute intervals thereafter.

By the roadside in South Park, through which the procession passed out of the city, were scores of motor cars parked to bid farewell. In fact, for miles out into the country were automobiles that had been driven out to see the tourists well on their way. The day was sunny, yet cool, and the scenery of appealing gentle beauty, on either side were well kept farms and thousands of acres of vineyards, while in the distance on the right one could see most of the way to Erie, the deep blue expanse of Lake Erie, as beautiful and as impressive as any Atlantic or Pacific.

All along the roads the people had turned out to see the tourists pass. Rosy-cheeked, white-frocked girls waved graceful adieux. Small boys cheered and stormed every car that stopped for cigar bands as souvenirs. At one place a bunch of lassies



Chairman Hower Starting Secretary Lewis in the Pilot Premier Car —Cup Donor Glidden in Front.

held aloft a gigantic canvas sign, "We Hope U WIN," while at Evans Center a hay wagon load of damsels had driven down to see the fun. Tom Fetch made a hasty dismount and gave some photographers a snapshot with Packard's Pride enviably ensconsed in their midst.

In line there were not a few cars that merited and received attention. An Oldsmobile rigged with a Gabriel horn stirred up the countryside by playing popular airs and did not forget, of course, "In My Merry Oldsmobile." The Premier, which is making a century a day for 100 consecutive days, is making its present runs with the tour. "El Toro," the first of the 1909 Packards, which won fame by its Cuban run last winter, was rigged with a close-coupled body and used as a press car with the only Tom Fetch as its pilot and F. C. Riggs in the rôle of Mine Host. It was the niftiest, nattiest outfit in line. The five passengers wore gray caps and dusters to match the gray body and their luggage was packed conveniently out of the way on the rumble platform in gray aluminum boxes.

A Reo carried THE AUTOMOBILE and *Motor Age's* mechanical and photographic staff and had Sales Manager Renshaw for its pilot. It put its passengers on the spot for every emergency and caught the leaders at will when necessity required. A Reo and a Premier served as pilot cars. A Packard with Russell Huff at the wheel bore the Red Cross banner, carried a physician, and transported the starter and checker from start to finish. The two watchmen were borne in a Stevens-Duryea, which started next to Chairman Hower and Charles J. Glidden in a Great Arrow, acting as pacemaker.

There are two women contestants this year. Mrs. Joan Newton Cuneo, of New York, is competing in a Rainier for the Glidden, and Mrs. E. W. Shirley, in an Overland, for the Hower trophy. Mrs. E. S. Berwick is Mrs. Cuneo's guest and Mrs. H. C. Marmon rides beside her husband. By way of illustrating the improveemnf of American cars in a few years it was recalled by old timers that a run of 91 miles from Buffalo to Erie was considered an ample day's journey for the Pittsburgh tour of 1903 and for the St. Louis run of 1904. This year Erie was reached by most of the cars in a round five hours. Turning from Erie inland, the cars had a pretty run over a rolling country to Cambridge Springs, where the many Spring hotels and boarding house guests gave the tourists a warm welcome, as did all the towns en route. At Westfield hundreds of bottles of cool grape juice were put in the cars by the Welch Grape Juice Company.

JOHN C. WETMORE.

As the Cavalcade Passed Through Erie, Pa.

How the First Day Appeared to the Technical Man.

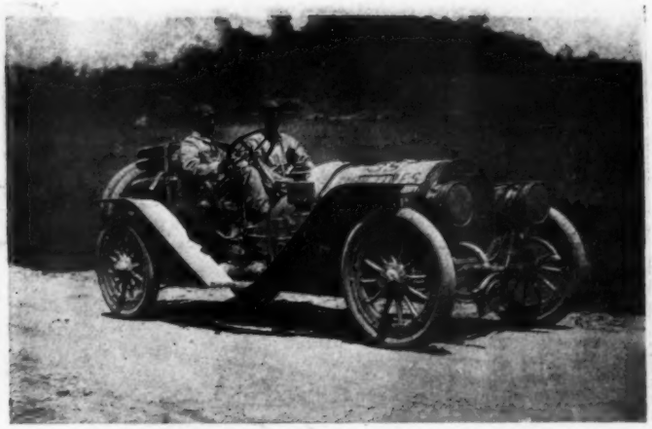
CAMBRIDGE SPRINGS, PA., July 9, 1908.—Of the fifty-eight cars scheduled to leave Buffalo this morning on the fifth annual Glidden tour and the Second tour for the Hower trophy 56 left and 55 reached Cambridge Springs with perfect scores, the one to suffer penalty and drop out being No. 105, the Gearless runabout entered and driven by John Breyfogle of Rochester. This car was eliminated when three miles east of Westfield. The car, traveling at a fast pace, struck a round stone in making a curve which resulted in an unexpected skid that brought the machine radiator end on into a telegraph pole, bending the frame, breaking parts of the steering mechanism and putting it permanently out of the running for the Hower trophy. Fortunately none of the party was injured.

On the Way to Cambridge Springs—Pierce Great Arrow Team.

The schedule for the 117 miles was 5 hours and 45 minutes for the big cars with 10 minutes extra added for the small Hower cars listing at $2,250 to $3,500, $1,500 to $2,250 and under $1,500, respectively; 10, 20 and 30 minutes extra, respectively, for Glidden contestants listing at less than $2,500. The start from the Buffalo Automobile headquarters was purposely delayed until 10 o'clock in order that Starter Ferguson and Chief Observer Stidham would have a good opportunity to drill observers and drivers in what will be the daily routine to be gone through in taking a car out of the night parking space. With police assistance this was well managed and at 15 minutes before ten the cars with drivers and observers in place were lined up along one side of Main street awaiting the start. The start was to be according to receipt of entries, the first received entry going first, being No. 100, the Great Arrow runabout in the Hower contest. Behind it were the three Great Arrow Pierces Nos. 1, 2 and 3 constituting the team in the Glidden contest. Fourth position was occupied by R. M. Owen in his two-cylinder Reo Glidden contestant with four passengers up and ranged behind him were Nos. 5, 6 and 7, the three Peerless Glidden machines forming the team of the Automobile Club of Columbus. It was noticeable how teams clung together, Nos. 29, 30 and 31, the three Garfords, making up the Cleveland team, being together.

The rule permitting the carrying of but four passengers, if desired, in the big Glidden touring cars was very closely ob-

An Official Gasoline and Oil Station on the Road.



The Fisk Rubber Company's Locomobile, Tire Laden.

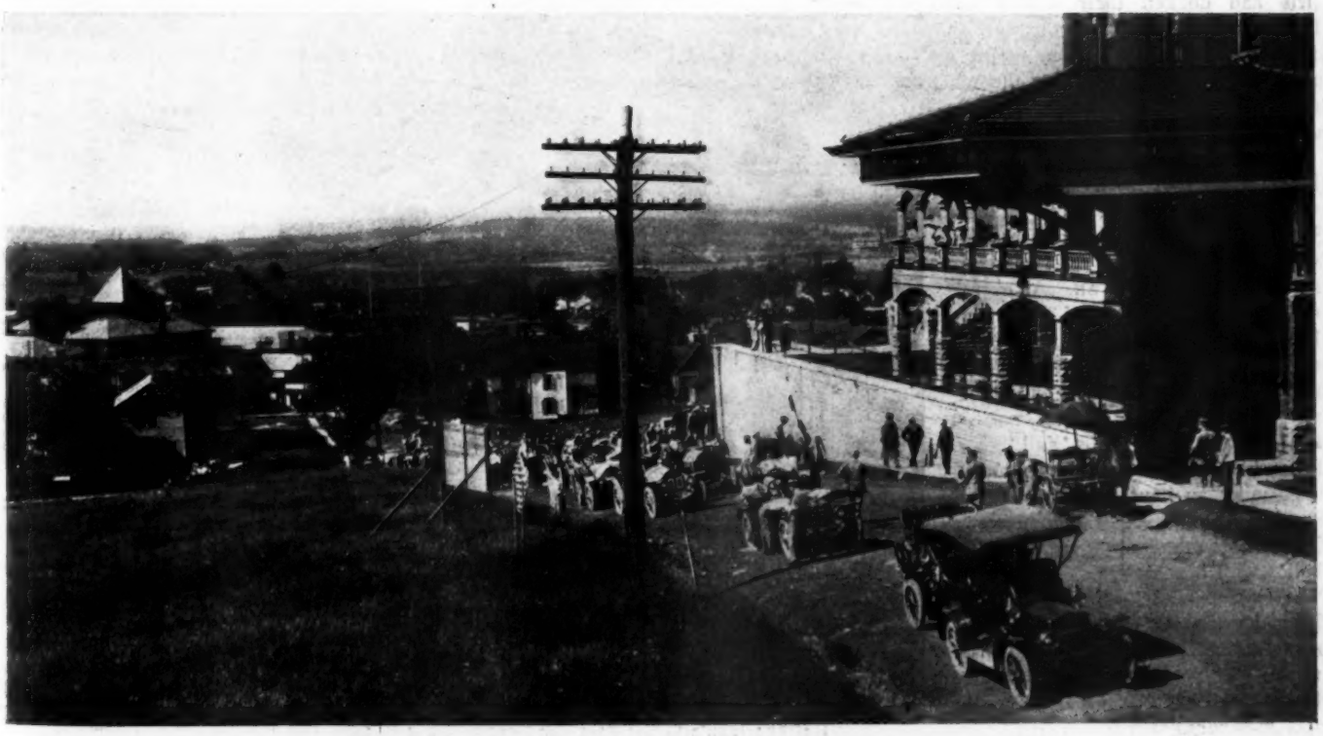
served, all of the big Pierce, Peerless, Marmon, Franklin, Garford and other machines carrying but this number. There were one or two exceptions: Paul Gaeth in his Gaeth car started out with five, so did No. 11, the Buse six-cylinder Thomas, but all others carried four which was in marked contract to the five and six carried in many of the contesting machines a year ago. Among the Howe trophy candidates, the Franklin, Reo and Blomstrom started out with two, but all others, from the big Pierce down to the three little Overlands, carried the three passengers. On many of the runabouts with the single bucket seat not a moiety of comfort was for the observer who occupied it. In a few cases handles on the backs of the front seats offered good holding space, but in others these were absent, and the bad roads made it a precarious perch.

Standing of the Teams at First Day's End.

At the end of to-day's run all of the ten contesting teams have perfect scores or credit marks of 1000 points. These teams are Buffalo Automobile Club, 2; Rochester Automobile Club, 2; Chicago Motor Club, 2; Syracuse Automobile Club, 1; Cleveland Automobile Club, 1; Columbus Automobile Club, 1; Bay State Automobile Club, 1. DAVID BEECROFT.

SECOND DAY—CAMBRIDGE TO PITTSBURG.

PITTSBURG, July 10.—To-day's run through the great steel mill towns of Pennsylvania was an ovation that continued during the latter half of the journey and culminated in a great demonstration in the Smoky City. The caravan arrived with its competing members lessened by one more off the perfect score list and another wounded by a repair penalization. In passing through New Castle, where the enthusiastic inhabitants urged the tourists to slow their paces, H. S. Van Tine, driving Garford No. 29, in dodging a man in the road, skidded into the curb and put its rear wheel out of commission. A new wheel was obtained from a car of the same make and fitted. This was a new part not carried and so the car had to be disqualified under the rules. Though it lost two hours in making the repair, it made up all but a half hour. It was hard luck that the Cleveland team shoud lose its perfect score through a mere life-preserving accident. Oakland, No. 28, burned out a connecting rod bearing and had to make a replacement which cost it three points, to which four points had to be added for tardiness. A. L. Kull got in very late with the little $750 Gyroscope and was charged with 296 points. Overheating had been the trouble that was responsible for its long delay.



At Hotel Rider, Cambridge Springs, Pa., Where the First Night Was Spent.

Crossing a Pioneer Bridge in the Pennsylvania Mountains.

The run to-day called for 122 1-2 miles in six and one-half hours, an average of 19 1-2 miles per hour. The original route was so changed that only the 44.6 miles to Mercer remained of the lay-out. New cards were given out from Mercer to Sewickley (103.2 miles) and from this point into Pittsburgh the tourists had only confetti and signs to rely upon. The journey was by no means an easy one. The 63.2 miles' trip to New Castle was up and down short, steep hills all the way. Then came brick pavements through the towns with rough country road between as far as Sewickley, whence there was fine macadam most of the way into town.

The wave of welcoming enthusiasm began to roll at New Wilmington. The town was literally smothered in flags, and every man, woman, boy and girl seemed to have one to wave. At one point a long hedge blossomed with little flags, and at another a building frame fluttered with scores of them. All through this section the course was marked by the white flags of the Automobile Club of Lawrence County. Everywhere the girls had donned their white Sunday-go-to-meeting dresses. The chief enthusiasts, though, were the small boys, who are taking a significant interest in motor cars that will mean much in the future generation for the universality of their use, the building of good roads, and the enactment of reasonable legislation.

It was at New Castle, though, that the enthusiasm of the welcome to the caravan reached its culmination. Sporting blood runs rich and red in New Castle veins. All the intersecting streets were roped off. At every one of the many turns of the route through the town there was a flagman. Every policeman yelled "Go on!" and every man shouted, "Hit her up!" No wonder some of the drivers lost their heads and sped down the narrow lanes of spectators at 40 miles an hour. It was a kind Providence that saved the good New Castle sportsmen from furnishing the dailies with headlines.

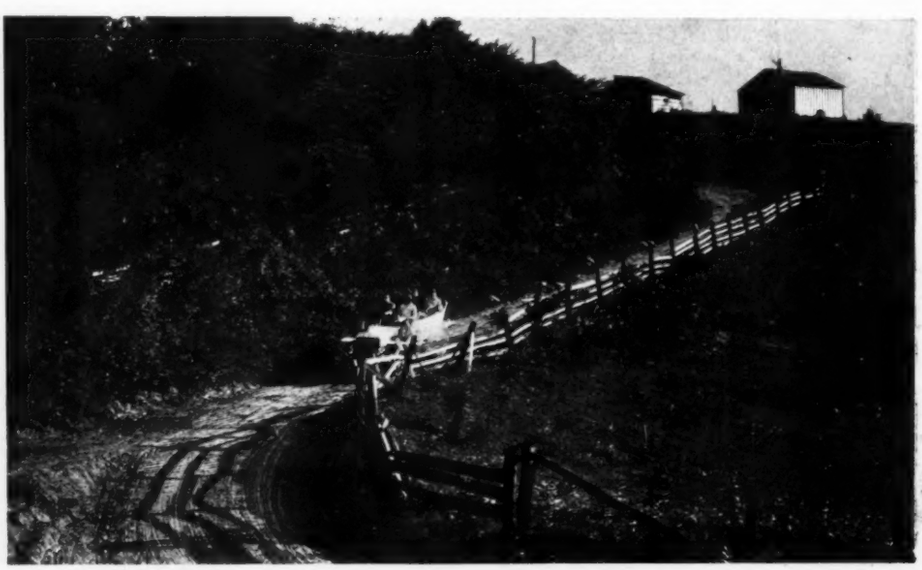
At Quaker Valley, Edgewood, and Sewickley the caravan entered Pittsburg's suburban park residential districts. The macadam wound among the palatial country homes of the steel magnates. From this point the tourists were to rely solely on Dai Lewis' confetti trail, but Philip S. Flinn, a former perfect score Gliddenite, and his fellows of the Automobile Club of Pittsburg had put up signboards all the way into town. For this they were thanked by special resolution at to-night's meeting of the contestants at the Schenley.

Great crowds greeted the caravan with effervescent enthusiasm as it entered and passed through the Smoky City. Speed limits were thrown off and the police joined in urging the drivers to "hit it up," just as they had at New Castle. The weary travelers had a luxurious evening's rest at the Schenley. They dined on the veranda or strolled on the lawns while they listened to the classic strains of the famous Pittsburg orchestra. But everyone turned in early in anticipation of the next day's work.

J. C. W.

Penalizations of the Second Day's Run.

PITTSBURG, PA., July 10.—Three Glidden contestants were penalized to-day, but the penalty against one lifted by the committee, leaving the count but two, enough, however, to put two of the ten teams struggling for the Glidden trophy out of the perfect score class, the second Chicago Motor Club and the Cleveland club teams losing. The three losing cars carried Nos. 27, 28 and 29 and were two Oaklands and a Garford. No. 28, J. B. Eccleston's Oakland, was debited two points because a passenger other than the driver and mechanic poured some of the gasoline into the tank at one of the fuel stations. This was allowed to stand, but the committee later decided to remove the penalty and also not to make it penalizable for any of the passengers to put in gasoline or water. This decision, rendered at the night meeting, was received with applause by all of the contestants. No. 28 Oakland, of the Chicago team, burned out the lower bearing of a connecting rod and had to put in a new rod. This work was facilitated due to the peculiar motor construction of the Oakland, which is a two-cylinder vertical power plant with removable cylinder heads. Removing the heads with the access offered by side openings in the crankcase gave suffi-



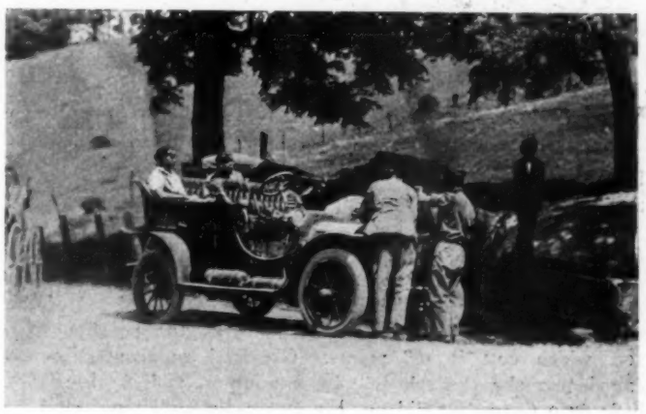
Hal Sheridan's White Steamer Descending a Rugged Hill Near Cramer, Pa.

cient room to take out the old and fit the new connecting rod without other dismantling of the motor, the driver and mechanic doing the work in a little over one hour. In spite of the delay the car made up all of its time but four minutes. Its total penalty was seven, three for replacement, the connecting rod costing $2.20, and four for time. This gave a penalty of 2.3 against the team composed of the two Oaklands and Mrs. Cuneo's Rainier.

The Cleveland Automobile Club suffered more severely, in that No. 29, Garford, was given the whole debit of 1,000 points because of the breaking of a wheel and replacing it with one not inventoried at the start of the tour. The accident occurred in the outskirts of New Castle, Pa., through which town fast speed was made by many of the cars because of the encouragement given them by the police and the demands made for speed by the thousands of citizens who thronged the streets. Leaving the city many right-angled turns had to be made and after taking one of these the car quickly swerved, causing a bad skid, thus throwing the wheel against the curb and wrecking it. A new wheel was taken off a car in New Castle and the car completed the day's run and will continue to the end of the trip. The entrant made certain protests to the committee against the disqualification on the ground that the accident was the result of a measure to conserve life. After a hearing the disqualification was allowed to stand. The remaining 28 cars fighting for the Glidden trophy finished with clean scores, as did the two Stevens-Duryeas in the contest for Glidden certificates. And of the 13 Hower trophy cars one, No. 113, the Blomstrom gyroscope, was given 296 points on time, it not reaching the checking station at Hotel Schenley, Pittsburg, until ten minutes to ten. The driver, A. L. Kull, reports the lost time due to five changes of tires that had to be made.

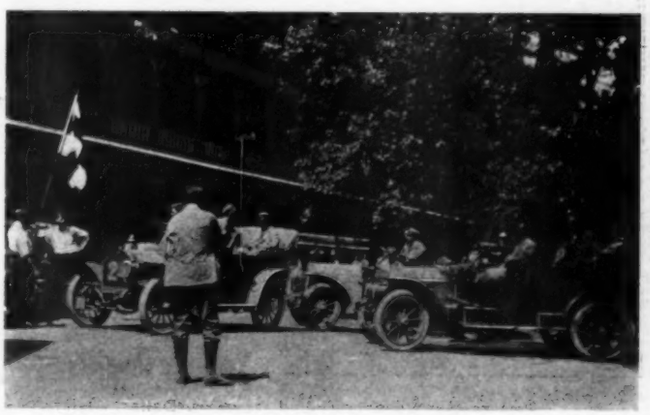
An important feature of to-day's run which THE AUTOMOBILE correspondent had an excellent opportunity of observing was how the cars performed on Kennedy's hill a couple of miles out of Meadville. This hill is a winding ascent of over a mile with water gutters across the road, plenty of sudden 15-per cent. grades followed by smaller grades and good turns. Garden's Great Arrow was first to take it; he made half the ascent before dropping from direct. Arthur Kumpf, who followed him a few rods, took the hill the same way and a little later J. W. McGuire in the third Pierce, went entirely up on the high. Burman in his Peerless made a nice high gear run of it and so did one of the Stevens-Duryeas. The air-cooled Franklins performed particularly well and passed other cars with facility on the hill. One of them took a Studebaker in tow when half up the hill and on the steepest part of it, and another did the same trick with Frank Nutt in his Haynes. The sport on the hill was watched by scores of motorists who had come from surrounding towns eager to see what the tourists would do on a hill that gives the local motorists plenty of trouble. Mrs. Cuneo was loudly cheered as she made the ascent well up on the high and only changed when near the top. Mrs. Shirley was also well received in her little overland. R. M. Owen in his Reo changed from direct when crossing a sidewalk across the road in the center of the hill and immediately went into direct again and made the remainder of it on direct. The hill is very deceiving from the foot, which was largely responsible for the poor performances not a few of the cars made. At times the machines were coming up in twos and threes and this sight coupled with that of watching them approach the hill over a mile of fine macadam in the valley made one of the most interesting points of this year's Glidden. Tire troubles occurred everywhere, the loose stones working particular havoc all along. When but a short distance out of Pittsburg, Foster's Gabriel Horn car had to change a left front casing. No. 9, H. O. Smith's Premier, had tire difficulties just before starting the mountain climb. No. 5, the *Motor Age* Reo, changed a right rear casing in the mountains, and No. 38, Fiske tire car, reported changes of tires being made at many points along the course, the pneumatics causing frequent delays throughout the day's run. D. B.

Waiting to Check In at the Pittsburg Control.

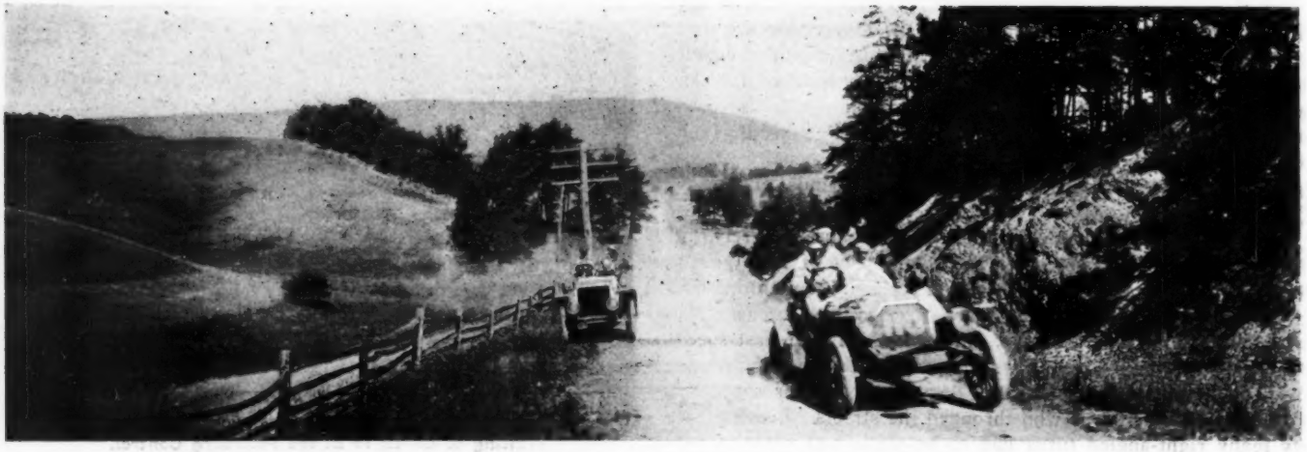


The Haynes and the Horse Take a Drink Together.

E. H. Parkhurst's Peerless Arrives at Johnstown Control.



Arrival of the Tourists at Bedford Springs Hotel.



Between McConnellsburg and Fort Loudon, Pa.— J. N. Willys' Overland (Hower Trophy Contestant) in the Foreground.

THIRD DAY—PITTSBURG TO BEDFORD SPRINGS.

BEDFORD SPRINGS, July 11.—The run to-day carried the caravan across three mountain ranges of the Alleghenies with magnificent scenic surroundings, but—Oh! such roads! A new and tougher path by far than that of last year was laid out, yet hard-hearted Hower cut the running time from 9 to 7 hours, an average of 17 miles an hour for the run of 106.4 miles.

There was only one knocked out for all that, the No. 111 Overland runabout, driven by C. R. Forth, which hit a rut just out of Pittsburgh and went down and out with a broken axle. A leaky carbureter exuding gasoline in the neighborhood of the magneto caused a bad fire on Stoddard-Dayton runabout No. 109, which cost it 168 points. Overland runabout No. 108 failed to make the schedule by 9 minutes, and A. L. Kull's little $750 Gyroscope did not get into camp until one o'clock.

This was not the total of casualties and penalizations to be reasonably expected from such a day's pushing up mountains, pounding over rocks and hammering bumps by 803—some one claims to have counted them—thank-ye-marms. There were some noteworthy fast runs made. Billy Hurlburt was delayed an hour and three-quarters and was forced to cover the course in 5 hours 7 minutes to escape time penalization, and the other Garford, which is now running as a non-contestant, was driven by Van Tine over the last 26 miles in 59 minutes.

The environing scenery was varied and roughly picturesque most of the way. One beautiful stretch of macadam which ran through the Connemaugh Valley into Johnstown gave a view of a dark green stream below shut up by high, steep mountainsides. We of the "El Toro" outfit lay over in Johnstown for dinner and were shown the water mark on the Capital Hotel and told by Mine Host the thrilling story of the great flood which cost no less than 3,000 lives so many years ago.

Picturesque Road That Led from Mt. Dallas.

Out of Johnstown a four-mile climb gave a taste of what was ahead before the two intervening mountain ranges could be surmounted. Then followed the long pull over the Alleghenies. Seventy miles' running through a narrow valley hemmed in by steep wooded hills brought the caravan to the Bedford Springs Hotel. There was such a good attendance of regular patrons and non-motoring guests that many of the Gliddenites were forced to seek accommodations at another nearby hotel or at the village inns. There was a rush for the swimming pool. In the evening there was a peaceful loaf on the verandas and lawns, though a few indomitable terpsichoreans like Spooner and Lazarnick actually had enough in them for a dance.

Sunday Was Spent at Bedford Springs.

BEDFORD SPRINGS, PA., July 12.—This old-fashioned resort hostelry nestled in an umbrageous little valley with green tree-shaded lawns formed an ideal spot for a rest from the three days of road battling that have passed and for the week of highway campaigning that is ahead before Boston's haven of two days of rest is reached next Friday night. There was to-day the luxury of a late breakfast. Then came a two hours' frolic in the swimming pool. A few, very few, took rides in their cars. The one strenuous machine was the Premier press car, which H. O. Smith and *Fate* have condemned to a 10-000-mile treadmill, made up of a hundred consecutive centuries. It made a semi-century morning and afternoon and reached, if the writer's tired memory serves him right, its 49th hundred-mile run to-day, so that its task is about half done.

The newspaper men alone were forbidden to join the loiterers. They had lost time to make up and thoughts to put to print, the inspiration of which had hitherto been robbed by long days of hard riding. So far there has been harmony. Penalizations have been accepted without strident protests. Of course, there have been kicks over the room allotments. There always will be. J. C. W.

Troubles of the Third Day Technically Told.

BEDFORD SPRINGS, PA., July 11.—To-day's run of 106 miles over the mountains from Pittsburgh to Bedford Springs did not prove the undoing of so many perfect scores as speculation had prophesied, the reason for this being the seven-hour schedule set for the big cars, with the usual extra allowance of 10 minutes for the small Hower cars and 10, 20 and 30 minutes for the smaller Glidden contestants. Only two of the Glidden Cup rivals had trouble: 19, Frank Nutt's Haynes losing the center bolt out of one of its springs. As yet it is not known whether Nutt will receive a penalty or not, owing to the fact that he took the spare bolt used out of the sealed bag containing extra spare parts, which would entail a penalization of one point. After his arrival here, Nutt declared that he has one of these bolts in his regular parts bag and if so he will be allowed to use it

and will not be penalized, as the use of regular spare parts does not entail any debit marks against a Glidden contestant.

Not so fortunate, however, was William Hurlburt, driving No. 31 Garford, which broke one of the drive shafts in the floating rear axle. In all, one hour and fifteen minutes were needed in removing the old shaft and replacing the new one. After this was done, Hurlburt gave an excellent demonstration of road driving, succeeding in beating the seven-hour schedule by eight minutes, showing that he had negotiated the 106 miles of mountain travelling in 5 hours and 7 minutes, or at over 20 miles per hour, a wonderful performance considering the long mountain climbs, the tortuous mountain descents, the scores of water breaks and the frequent stretches of road on which loose stone and dirt were piled. Hurlbut's total penalty has not yet been placed. This Garford trouble, taken in connection with that experienced by Garford No. 29 on Friday, when a wheel was broken, puts the Cleveland clubs in bad shape. These two troubles do the cars an injustice because all three were brand new from the factory and had not been run or limbered previous to the start from Buffalo on Thursday morning.

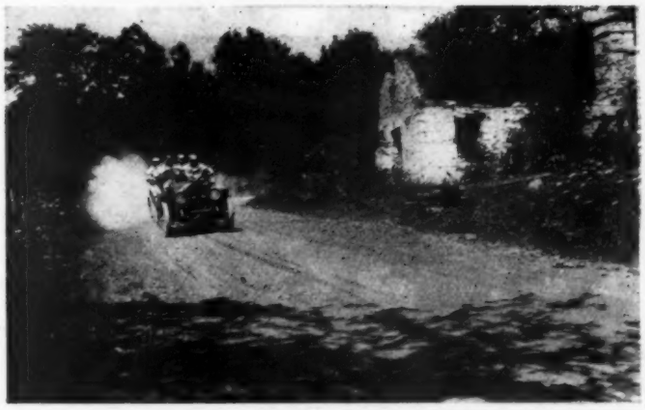
What Happened to the Hower Trophy Contestants.

In the Hower ranks five cars came to grief, four of which received penalties. No. 108, Mrs. Shirley's Overland, was penalized 9 points for time; No. 109, Stoddard-Dayton, entered by H. C. Tillotson of Chicago, was debited 168 points on time, the trouble arising from the gasoline around the carbureter igniting from a short circuit on the magneto. In this car the carbureter, magneto and timer are grouped on the left side and the vapor formed from a leak in the carbureter quickly ignited when a short circuit took place. The mechanician's hands were severely burned in extinguishing the blaze, which was confined to the motor. Dr. Hoag in the Red Cross Packard fortunately was near at hand and dressed the wounds. The car continued its trip. This car also suffered a fracture of the two brackets to which the forward end of the radius rods attach. These brackets are bolted to the side members of the frame and new ones which were carried in the spare equipment were used.

No. 111, Overland, broke a rear axle a short distance out of Pittsburg, and took the full count of 1,000, the car discontinuing the tour. The accident happened when on a fairly good road, the rear wheel spreading and the differential case settling to the ground. A. L. Kull's Blomstrom Gyroscope, No. 113, checked out of Pittsburg but did not reach here until midnight.

Monday's Was a Very Hard Day's Run.

To-day's run was one of the hardest of the contest so far and it is gossip here to-night that none of the succeeding days of the tour will approach it. There are longer days' runs scheduled, some reaching the 194-mile mark, but these will be



The Garford Passes a Ruined Farmhouse.

over good road surfaces on which cars can make fast time. In to-day's climb over the Alleghenies, the road for miles was but a sandy trail with stone bottom winding between acres of burned woods at one place and dense forests whose branches formed a continuous arch across the roadway and brushed the heads of the drivers and passengers at other places. The roads twisted and contorted every fifty or two hundred feet and were crossed by improvised bridges whose planks got out of place after the first car or so had crossed. On these roads the water breaks were not so omnipresent as on the course followed a year ago, but what was gained by their absence was more than compensated for by the masses of hugh broken boulders over which the cars had to travel with the danger of one or two punctures while going over them. D. B.

FOURTH DAY—BEDFORD TO HARRISBURG.

HARRISBURG, PA., July 13.—The 107.3 mile run from Bedford Springs was almost a repetition of Saturday's journey from Pittsburg. Though two-thirds of the journey's end into Harrisburg was over a fairly good macadam, and, in fact, stone roads ran most of the balance of the way, there was a far more constant pounding over water breaks at an average of 200 feet intervals and the long climbs up Mount Dallas and Mount Cove were through long stretches of heavy sand. The six-hour schedule calling for an average of 18 miles an hour played the mischief with fast running the first third of the journey and gave the cars a merciless hammering that promised to tell heavily on the scores at the end of the day.

In the face of such a journey no little havoc was wrought on the perfect score slate. Two teams, in fact, dropped back into the ruck of the also-rans. The Syracuse and Rochester trios evolved with a car apiece penalized. Franklin No. 12,

Where the Cars Were Parked at Harrisburg at the End of the Fourth Day's Journey.

One of the Good Luck Signs That Greeted Them.

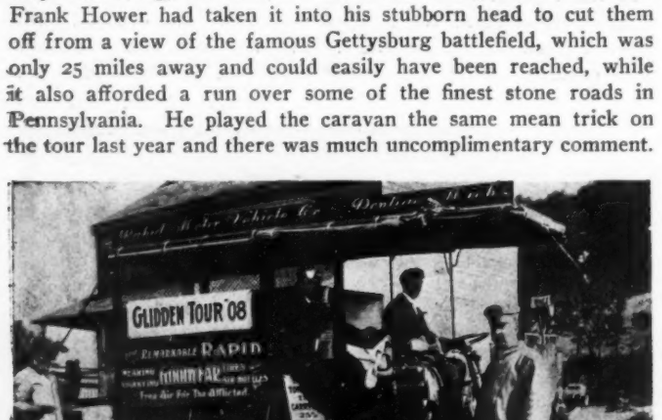
driven by C. H. Talbot, which had broken and mended a spring the first day, stopped at Harrisonville to weld a new spring leaf under the amended rules permitting new parts to be made out of raw material and arrived so late that it lost 61 points. The Selden, which also had had trouble with its springs, was very late. Its exact penalization had not, however, been announced at the writing of this letter late in the afternoon.

The Hower runabout perfect score division was still further decimated. Franklin No. 106, piloted by J. H. Daly, broke several front spring leaves and suffered a penalty of 181 points. Moline No. 102, driven by W. H. Vandervoort, sprung a leak in its cylinders three miles outside of Harrisburg and was penalized 51 points. It is hoped, however, that the leak can be plugged so that the car can continue.

To-day's journey was another day's run through magnificent mountain country. The long hard pulls of three or four miles up the sides of the Blue Ridge range had their compensation during the winding descents of glorious panoramas of broad farm checkered plains or picturesque valleys with green wooded hills some times in the foreground and at others blue mountains in the distance adding to the charm of the scene.

Old Chambersburg reached and historic rebellion days' ground was traversed. Before and after the Battle of Gettysburg the Yanks and Johnny Rebs fought through the streets of the old town, part of which the confederates burned in their retreat.

The caravan passed also close to the buildings of the Indian School and also of Dickinson College at Carlisle. All this was very interesting, but all the tourists asked why in the mischief Frank Hower had taken it into his stubborn head to cut them off from a view of the famous Gettysburg battlefield, which was only 25 miles away and could easily have been reached, while it also afforded a run over some of the finest stone roads in Pennsylvania. He played the caravan the same mean trick on the tour last year and there was much uncomplimentary comment.



The Rapid Car That Carries the Goodyear Tires.

There was the same enthusiastic reception that marked the first three days of the journey. The Chambersburg Motor Club not only stretched a banner, "A. A. A., We Hope U All Will Win" across the road, but built a triumphal arch inscribed "Welcome" on the main street of the little town.

It was a refreshing sight that made one realize that he was out in the real country to see the calico sunbonnets of the women and the blue jeans of the men so universally prevalent inside the towns. All along the entire route one ran across Cadillacs, Fords, Ramblers, and even more pretentious cars of the Franklin type owned by the farmers. There were also not a few higher priced cars by the roadside filled with fashionably gowned passengers from the towns.

The "Gabriel Horn" car, piloted by C. H. Foster himself, is adding much life to the tour and stirring up the countryside in great fashion. All through the towns the pianoist hits up lively airs and gives the people a listening knowledge of "The Gang's All Here" and the latest Broadway musical comedy songs which as yet have not reached this far.

That live wire bunch, the Motor Club of Harrisburg, is giving the tourists a smoker to-night. The caravan is split between two hotels, the Lochiel and the Metropolitan. The former is official. The latter, though, has a bath to each room and the press boys for once seem to have the better of the deal.

Motor Club of Harrisburg Gives a Smoker.

At the Motor Club of Harrisburg's smoker speeches were made by Hon. Edward S. Stewart, Governor of Pennsylvania; Hon. E. S. Meals, Mayor of Harrisburg, who, as vice-president of the club, spoke in the absence of Vance McCormack, the president, at Denver. Incidentally R. H. Johnston, referee, and D. A. Beecroft, chairman of the A. A. A. Technical Board, presented the medals won in the club's recent endurance run.

Tentatively Chairman Hower has asked not a few of the makers on the run what they think of running next year's tour to Denver—it being an open secret that the Colorado metropolis is in his mind as the 1908 destination—being run circus fashion with a camp pitched each night by professional tent men. The novel idea is making a hit. J. C. W.

How the Fourth Day's Run Told on the Score.

HARRISBURG, PA., July 13, 1908.—To-day was calamity day in the Glidden and Hower ranks, two of the perfect score teams falling from grace and three of the perfect score Hower runabouts being eliminated. The Syracuse Automobile Club has 20 demerit marks chalked up against it due to No. 12 Franklin touring car being 60 miutes late, for which it received 60 points. The cause of the trouble was due to the breaking of the rear spring that broke on the first day's run near Fredonia and which was so quickly welded. To-day it broke in the same place, and the repairing cost 60 points, which counts 20 against the club, making its mark 940. Although the spring has been rewelded the driver is doubtful as to whether it will endure much longer. Much talk has been occasioned because of the Franklin spring trouble and not a few of the tourists ascribe the trouble to not equipping the machines with shock absorbers. The other club to suffer was the Rochester one, composed of the Gaeth, Thomas and Selden, the Selden being the offending member of the team, its troubles resulting from the breaking of all of the leaves of a spring on Saturday's run to Bedford Springs. This leaves but seven perfect score teams in the Glidden cup struggle, namely, two Buffalo teams, first team in Chicago Motor Club, the Studebaker-Rochester team, the Marmon team under the colors of the Bay State Automobile Club and the Columbus club composed of the Peerless cars.

The three to fall in the Hower ranks are No. 102, the Moline runabout that was held up within three miles of Harrisburg due to motor troubles and was penalized 51 points on time, the motor trouble not calling for any replacements of parts. No. 106, the Franklin runabout, had trouble because of breaking one

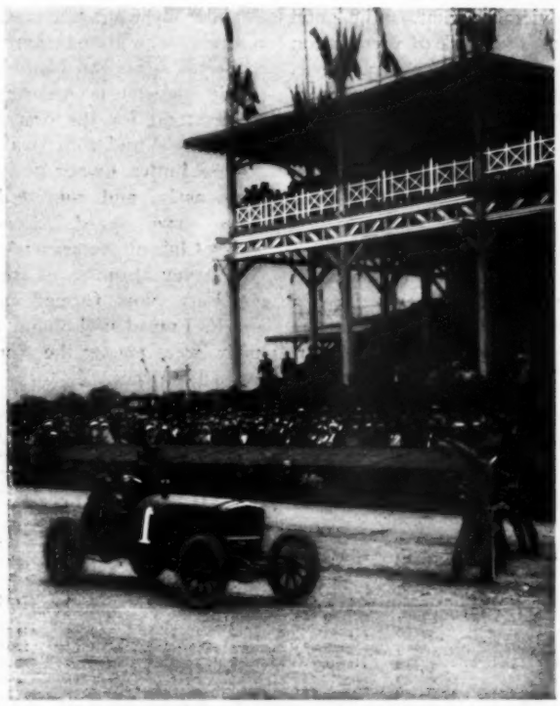
(*Continued on page* 105.)

GERMANY'S VICTORY IN GRAND PRIX OF FRANCE

Mercedes Redivivus, then Benz and Benz Again, with Clement Fourth Followed by More Germans—Italy Fails to Figure Dangerously

By A. G. BATCHELDER

DIEPPE, July 7.—France to-night isn't exactly sure that automobile racing pays. "Made in Germany" it a label that does not find extraordinary favor in the land of the fleur de lis. To have had one Lautenschlager the winner of the Grand Prix were sorrowful enough, but to have had his Mercedes chased by two Benz racers and the nearest French contender a fourth, added to gloom still further intensified by the subsequent arrival of three more Germans. Think of it! Six cars out of the first ten bearing the hated label and that tenth one from Belgium! No wonder that the departures from the grandstand began before the elated Lautenschlager had completed his tenth round. Yes, he received some cheers—there were a goodly number of Germans present—but the enthusiasm of the multitude evoked that same quality of joy which may be expected when the home team loses out in the ninth inning and there is no consolation.



Lautenschlager, the Mercedes Winner.

Mercedes presumably had been placed on the shelf by the French makers, and as for Benz, that car had been heard of in the early days of automobiling. Opel was a name unknown. And to have these intruders survive the ordeal in superb manner, and only a single French car intermingle with them, was cause for lamentations prolonged and undisguised. Last year it wasn't quite so bad to have Nazzaro of Italy win with French runners close up, though that blow gave the racing advocates a jolt that benumbed them for the whole year intervening.

The Gordon Bennett, with all countries participating having five cars each, didn't give France as much chance for victory as she thought her automobile importance entitled her to, and so that event had to give way to the Grand Prix, wherein every maker can have three cars each. For like reason the Vanderbilt, being similar to the Bennett, received the kibosh from the French club and its European satellites.

But this Grand Prix is not working out as satisfactorily as anticipated—France with a preponderance of the entry list has met defeat twice in three years, and the one to-day is a crusher. Automobile sport is most uncertain—and, alas! it is grounded in commercialism. No longer do the multi-millionaires pay the bills and drive the cars. Now 'tis the maker who pays the freight—with rare exceptions—and the expenses are heavy when three entries become advisable, once the plunge is made. France is the only European country which now conducts a real big race, and to hold it with the inevitable risk of losing prestige is chilling the ardor even of those who think racing a good advertisement for the industry.

But there is also sorrow of a different sort to-night, and the startling death of Cissac and his mechanician has called attention to the great risks now associated with high speed contests. Tires can only stand so much, and the Dieppe circuit has been unusually severe this time on the wind-shod shoes of the hard-driven autos. Stretches of road there were which hacked tires as though the rubber was pulp, and it became the usual thing to have car after car limp to the replenishment depots in front of the grandstands and take on fresh supplies of pneumatics.

As was demonstrated in the practice work, the limiting of the piston area so that a four-cylinder had 155 mm. and a six-cylinder 127 mm. per cylinder did not prevent an increase in the speed. Last year fuel consumption—30 liters for 100 kilometers—was the basis of limitation. Nazzaro then accomplished an average of 70.61 miles per hour for the entire run.

For a single round to-day Salzer on a Mercedes averaged 78.5 miles, and if tire troubles had not multiplied, the winner's average of 69.5 for the entire distance would have been miles ahead of a year ago. Another factor which interfered with the speed was the inadequate tarring of the first day did not improve places reeked with dust that penetrated the goggles of the drivers and made them suffer intensely and use no small amount of caution. The voiturettes race of the first day did not improve the course, which, however, did not impress me any too favorably during a Sunday journey over it. Excellent stretches there were, but one also encountered rough spots and more dust than I have ever seen on any Vanderbilt course. It is only fair to say that thousands of autos visited the triangle on the days preceding the races and unquestionably were greatly responsible for its disappointing condition.

But there is a widespread feeling to-night evident that high speed racing has reached its climax. France can hardly quit now with two successive defeats chalked up against her, and this means that there must be a 1909 race at least. After that—well, one can't state positively. Charles Jarrott even ventures to say that it is now ended, but the English have not been keen on the road racing proposition since the Gordon Bennett in Ireland. Marquis De Dion asks: "What's the use of it? It does not prove anything except that it is easy to endanger life." The Marquis, however, has been opposed to racing for some time, though it is to be noted that he no longer stands practically alone in his attitude among the French builders of prominence.

There were 48 starters, 23 of them being French, and 25 supplied by other nations. There were 23 finishers, only 10 of which were furnished by the home country. Germany put in 9 cars

and finished with 7. Italy had 6 starters and 2 finishers; Belgium had 3 starters, 2 finishers; England had 6 starters, 2 finishers.

America sought experience and did not hope a single instant for victory. The Thomas entry was known to be nothing more or less than a partially remodeled stock car, of less power than any other racer engaged, and participating for the purpose of gaining experience for future use and incidentally to demonstrate reliability. Harry Houpt had a hard task cut out for him from the moment he landed in Dieppe and took charge of the Thomas interests. He labored indefatigably to overcome hurried preparation and the usual handicaps following in the train of doing things in a country where the American way is at times impossible and impracticable. And the Thomas started in its turn, persistently pursued its progress for four rounds, after suffering from tire difficulties in profusion. Then a leaky gasoline tank on the fifth round brought Strang's ride to its conclusion. Many others had fallen by the wayside in the meantime—some of them possessing international reputations.

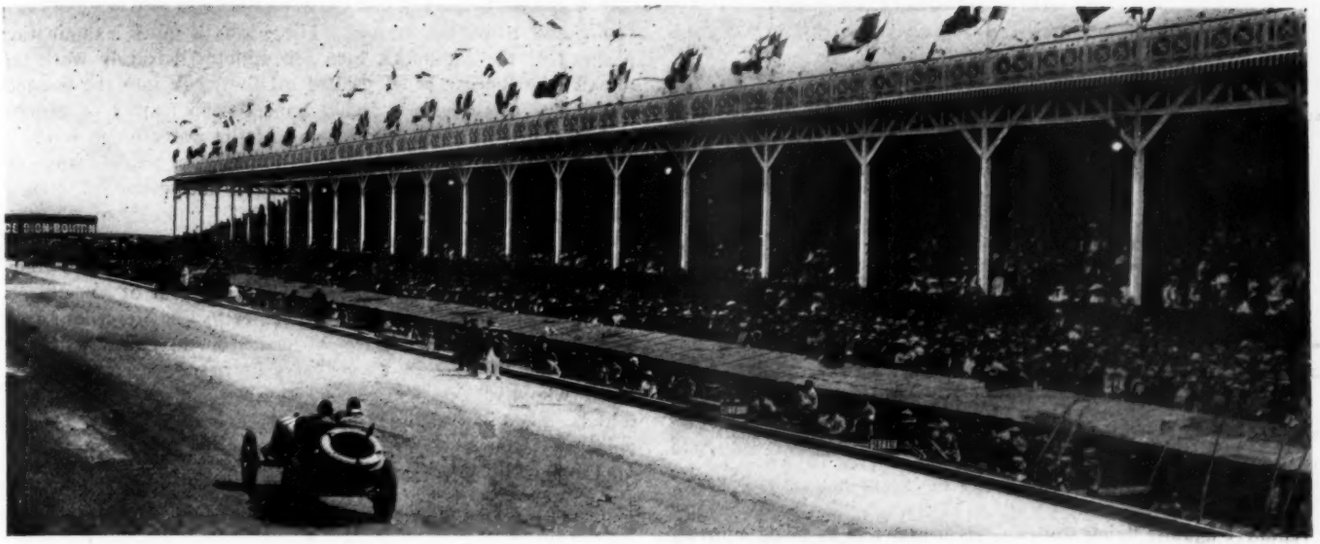
One cannot resist asking, however, as to whether it is worth while for the American maker to seek international racing glory in Europe. There will be no market of much account for American cars in Europe for years to come—if ever—and unless an American can "cash in" a European victory, what is the good of seeking a useless asset. Furthermore, the work of preparation must be thorough and planned not less than a year in advance.

And it might be said right here that several European makers who have been much in evidence heretofore in American racing are doing some careful calculation as to whether it is worth while. Since they race their cars for advertising purposes, they are inclined to compete in the most important event, which, of course, means the Vanderbilt cup. If through some hocus-pocus or other, this is impossible, they are not charmed with the idea of going any distance from New York City, even to accommodate a club which has been over friendly to foreign makers generally and only as recently as last winter had the French ambassador as the guest of honor at its annual dinner. But the present administration of the Automobile Club of America prizes highly its "foreign relations," to "protect" which Dave Hennen Morris, formerly president—and a good one, too—came over for the Grand Prix and a session of the "Recognized Clubs," in the running of which figures dictatorially Rene de Knyff, managing director of a French automobile company and chairman of the racing board of the French club. Of course, the "Clubs" will stick by the A. C. A. through thick and thin, and thereby hangs a tale which will be set forth in these columns in due course of time. Self-preservation is said to be the first law of Nature—and also of "national" automobile clubs. But 'tis good guessing that until America has a real voice and vote in the international proposition, there will be no acceptance by American makers of international racing conditions. If the foreign makers do not fancy our rules, then they can stay away—or compete in a special event arranged for them by their particular friend, the automobile club of "foreign relations" fame. But, alas! Now they are not sure at all that it is remunerative to race cars in America, for the American market is not what it once was for foreign cars.

W. K. Vanderbilt, Jr., was among those who saw the race, and incidentally he made clear to those who cared to know that it is the A. A. A. and not the A. C. A. which promotes the Vanderbilt Cup race and controls racing in America. Robert Graves, who has a Mercedes entry in the Vanderbilt and may have an American candidate also, was another in evidence who made known the American situation, which only now is being understood for the first time. John S. Worden, who drove in the 1905 Vanderbilt, was to be seen. He now lives at Nice. James Butler, owner of the Empire City track, enjoyed the sport immensely, and regretted that the "stars and stripes" didn't have more speed. Cortlandt Field Bishop, president of the Aero Club of America; J. C. McCoy, also of aeronautical fame; J. Harvey Lanning, of the Wilkes-Barre Automobile Club; Hart O. Berg, now foreign manager of the Wright brothers; and A. E. Lumsden, London manager of the B. F. Goodrich Company, were among the American contingent in Dieppe which witnessed the race.

A COMPLETE TABLE SHOWING THE TIMES MADE BY EACH CAR THROUGHOUT THE CONTEST.

No.	Car	Driver	1st Round	2nd Round	3rd Round	4th Round	5th Round	6th Round	7th Round	8th Round	9th Round	10th Round
1	AUSTIN	Brabazon	44:48	1:31:00	2:17:00	3:04:08	3:55:32	5:00:54	5:53:47	6:54:05	7:48:27	8:46:50
2	MERCEDES	Pæge	38:25	1:28:38	2:21:47	2:56:30	3:47:20	4:30:36	5:13:59	5:59:24	6:45:49	7:23:31
3	MOTOBLOC	Courtade	43:19	1:31:26	2:13:32	Abandoned.						
4	RENAULT	Szisz	37:06	1:22:05	Damaged rim.							
5	LORRAINE-DIETRICH	Duray	38:58	1:08:00	Clutch seized.							
6	BENZ	Hemery	37:55	1:19:02	1:58:22	2:39:58	3:24:49	4:10:42	4:50:26	5:34:42	6:19:58	7:04:24
7	F. I. A. T.	Lancia	38:58	Broke water-pump shaft.								
8	BRASIER	Thery	37:06	1:17:17	2:04:21	2:47:46	3:33:35	4:15:15	4:59:19	5:44:58	6:40:46	Abandoned.
9	PORTHOS	Stricker	46:15	1:31:02	2:27:12	3:18:27	4:13:13	5:16:45	6:04:07	7:00:47	8:05:32	Abandoned.
10	OPEL	Fritz Opel	44:59	1:28:40	2:27:03	3:16:41	4:09:50	5:00:12	6:39:00	7:06:01	8:11:05	9:08:11
11	BAYARD-CLEMENT	Rigal	43:46	1:33:05	2:18:15	3:01:22	3:46:05	4:30:17	5:20:03	5:57:31	6:44:40	7:30:36
12	ITALA	Cagno	39:26	2:00:48	2:46:05	3:31:00	4:18:37	5:52:07	5:49:32	6:37:29	7:18:26	8:07:56
13	WEIGEL	Laxen	48:36	1:44:05	2:23:54	3:19:04	4:04:40	Overturned.				
14	MORS	Jenatzy	41:31	1:27:05	2:20:31	3:08:21	4:02:12	4:53:23	5:50:55	6:47:10	7:36:30	8:24:44
15	THOMAS	Roberts	53:44	1:57:30	2:54:17	3:52:18	Punctured gasoline tank.					
16	PANHARD	Heath	41:37	1:21:50	2:05:18	2:45:12	3:36:22	4:28:26	5:13:22	5:56:12	7:03:43	7:53:36
17	GERMAIN	Degrais	53:39	1:44:55	2:38:03	3:29:52	4:20:56	5:23:12	6:22:40	7:25:40	8:24:42	9:13:34
18	AUSTIN	Wright	47:34	1:37:45	2:27:22	3:11:55	4:06:10	5:00:19	6:07:15	6:58:46	7:45:40	8:42:50
19	MERCEDES	Salzer	36:31	1:36:05	Abandoned.							
20	MOTOBLOC	Pierron	41:28	1:26:18	2:12:27	3:00:05	3:59:55	4:53:26	5:41:02	6:23:14	7:09:49	8:19:56
21	RENAULT	Caillois	39:20	1:27:19	2:10:44	2:59:58	3:47:25	5:13:48	5:59:04	6:49:04	7:32:40	8:19:56
22	LORRAINE-DIETRICH	Rougier	39:37	Magneto trouble.								
23	BENZ	Hanriot	38:43	1:18:56	2:03:51	2:44:34	3:26:43	4:11:15	4:53:40	5:38:16	6:20:50	7:05:13
24	F. I. A. T.	Nazzaro	37:48	1:15:55	1:59:15	Broke crankshaft.						
25	BRASIER	Baras	37:44	1:24:06	4:00:51	Cams worked loose on shaft.						
26	PORTHOS	Gaubert	Did not complete first round. Smashed wheel on turn.									
27	OPEL	Jorns	41:14	1:24:11	2:09:28	2:52:47	3:35:25	4:23:42	5:05:31	6:00:44	6:46:41	7:39:10
28	BAYARD-CLEMENT	Gabriel	38:48	1:50:35	2:48:32	3:29:10	4:20:36	5:02:59	5:55:18	6:37:10	7:27:25	8:11:44
29	ITALA	Fournier	38:55	1:22:32	2:44:17	3:54:31	4:38:25	5:25:50	6:09:00	7:11:25	7:58:20	8:47:20
30	WEIGEL	Harrisson	53:03	1:50:24	2:38:53	Overturned.						
31	MORS	Robin	40:13	1:30:37	2:28:01	3:18:34	4:13:30	5:04:00	6:10:12	6:55:42	7:51:55	8:39:20
32	PANHARD	Farman	46:10	1:30:52	2:19:28	3:13:15	5:59:22	4:43:33	5:35:22	6:42:44	7:53:15	9:24:40
33	GERMAIN	Roch-Brault	44:50	1:29:30	2:22:00	3:07:23	Abandoned.					
34	AUSTIN	Moore-Brabazon	43:35	1:27:47	2:14:47	3:00:38	Engine seized.					
35	MERCEDES	Lautenschlæger	38:29	1:16:55	3:21:56	2:41:36	3:21:56	4:06:34	4:49:35	5:30:53	6:09:35	6:55:43
36	MOTOBLOC	Garcet	42:30	1:29:42	2:12:22	3:13:08	3:54:49	4:41:20	5:31:31	6:26:13	7:24:31	8:12:43
37	RENAULT	Dimitri	44:31	1:27:00	2:33:03	3:15:38	3:57:39	4:50:22	5:33:10	6:17:27	7:05:42	7:54:12
38	LORRAINE-DIETRICH	Minoia	39:59	1:18:48	4:11:42	Abandoned.						
39	BENZ	Erle	45:35	1:27:59	2:10:10	2:59:05	3:45:51	4:32:01	5:19:17	6:10:09	6:55:48	7:43:21
40	F. I. A. T.	Wagner	37:13	1:17:38	1:56:25	Abandoned.						
41	BRASIER	Bablot	36:40	1:21:29	2:07:35	2:49:48	3:59:48	4:54:18	5:38:24	6:24:26	7:11:17	Abandoned.
42	PORTHOS	J. Simon	43:31	1:33:43	Overturned.							
43	OPEL	Michel	46:51	1:33:43	2:22:45	3:07:17	4:00:48	4:56:57	4:45:00	6:52:04	8:29:18	Abandoned.
44	BAYARD-CLEMENT	Hautvast	40:09	1:29:03	2:09:42	2:51:33	4:48:51	Abandoned.				
45	ITALA	Piacenza	1:51:23	Abandoned.								
46	WEIGEL	Shannon	49:55	Broke a wheel.								
48	PANHARD	Cissac	39:37	1:22:51	2:09:46	2:50:34	3:39:11	4:22:37	5:07:18	5:57:07	Abandoned.	
49	GERMAIN	Perpère	46:44	1:33:39	2:21:02	3:07:26	3:58:36	4:49:05	5:36:25	6:23:06	7:13:35	7:59:07



General View of the Long Grand Stand, Showing the Replenishing Boxes Alongside the Road and the Asphalt Strip.

HOW THE GRAND PRIX WAS RUN AND WON BY THE GERMANS

By W. F. BRADLEY.

DIEPPE, July 7.—At 6 o'clock promptly, the boom of a cannon announced the approaching start of the race. One minute later and Darius Resta, England's race track champion, had shot over the line on the long, green Austin, the leader in what everybody was convinced would be the most keenly disputed automobile race Europe had ever seen. One minute later, Poegge and his Mercedes had evoked the cheers of the strong German element and was racing down the road after the Britisher. Pierron and the Motobloc passed almost unnoticed. Then five of the best drivers Europe can boast stood in line in this order: Szisz, Duray, Hemery, Lancia, and Thery. Szisz and his low built, elegant-looking Renault commanded a hearty cheer; Duray was not lacking in favoritism, but Hemery was treated to cold silence; Lancia, the unlucky, still showed that he was popular with race crowds, but it remained to Thery, returned to the racing game and the Brasier team after an absence of two years, to receive the most prolonged and hearty roar accorded any of the well-known racing favorites.

Stricker, the Yankee driver of a six-cylinder Porthos, was followed by Opel, the German, on his own machine. Behind was little Rigal on the big, blue Bayard-Clement, one of the fastest cars in the race according to preliminary tests. Next followed Cagno, Itala; Harrison, Weigel; and Jenatzy, Mors.

Then came the turn of No. 15 Thomas, with Strang at the wheel. Though the first and second gears had locked on the shaft while driving up to the starting line, Strang went away in excellent style, and was certainly a long way from being the slowest starter among a group of very fast cars.

Thirty-three other cars followed, every start being made with a dash and vim that revealed a determination to conquer in a hard, long struggle. Instead of the 49 cars originally entered, the actual starters were one less, the third Mors, originally intended for Charles Jarrott, but later turned over to a factory mechanic, being absent on account of a break-up while on a previous practice spin. The three English Weigels, too, had at one time been doubtful starters, an accident two days before which cost the life of one of their friends, an amateur driving the 1907 Renault of Szisz, completely disorganizing the team. The final settlement was that Weigel, the owner and builder of the three cars, withdrew from the race and was replaced by a tester.

The number of cars being large and the road reported rather loose and dusty in places, special precautions had been taken by most of the drivers. A large proportion had their faces painted, and complete masks with but an opening for the mouth and eyes were used by many. Duray had a light wire gauze screen fitted up from the right hand side of his dashboard as a pre-

Lautenschlager, the Victorious German, in Full Mercedes Flight Near Ancourt.—Taking a Turn with Consideration for Tires.

Hemery Preparing Benz for Final Round.

ventative against flying stones. His breast was as usual adorned with Lorraine-Dietrich charms, and on the right of the chassis was a notice in English and German "Dangerous to lean out."

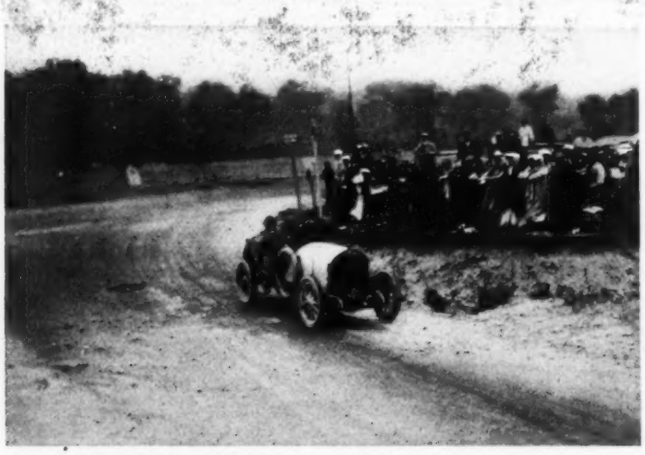
First Round Over 78 Miles an Hour.

A second after the Benz car driven by Erle had been sent away, the first car to finish the round roared past the grandstand at a speed of about seventy miles an hour. It was Poegge on the Mercedes, who had succeeded in passing the Englishman Resta, sent away one minute ahead of him. Before No. 48 Germain, driven by Perpere, had closed the starts, Szisz, Hemery, Lancia, Duray, and Thery had finished their first round, the excitement as the last cars left and the leading cars finished their initial trip being intense.

Thery on the Brasier and Szisz on the Renault each covered the first round in 37:06, which is at the rate of slightly over 77 miles an hour. Thus last year's record round, made by Nazzaro in 38:16, or at the rate of 75 miles an hour, was beaten before the struggle had been in progress an hour. But even better time was to be made, for when Salzer roared past the grandstands on his Mercedes he had performed the stupendous feat of covering the 47.8 miles of road, with a standing start, in 36:31, which works out at the rate of 78.5 miles an hour. The limited bore cars had already proved themselves faster than their unfettered predecessors of 1907 and 1906.

Wagner, who had started fortieth on the list, beat his team mate Lancia and his rival Thery by covering the first round in 37:13. Bablot of the Brasier car, made the second fastest time on the initial round by putting up figures of 36:40. The one other to break last year's record was Hemery's Benz, in 37:55.

Lancia's brilliant work was only of short duration. After passing the tape at the end of his initial round the bulky Italian pulled in his car at the appointed tire station, jumped off hurriedly and lifted the bonnet. There was a quick examination, a shrug of the shoulders, then ten minutes' leisurely work terminated by the car being pushed off the track into the paddock at the rear of the grandstands. Lancia's opportunity of winning had been lost through the breaking of the water pump shaft.



Hanriot (Benz) Turning at Londinieres.

Jenatzy ran in on completing his round in order to change the tires in the manufacture of which he is interested. The work was done while the engine was running, a quantity of oil taken in, and the Mors car was off again.

Nazzaro had secured first place by the time the second round was completed, and was followed at an interval of exactly one minute by Lautenschlager, the newcomer to the Mercedes racing team. Thery had third place, Wagner fourth, Duray fifth, and Minoia, the De Dietrich driver, sixth. There was surprise that Szisz, who had tied with Thery for third place on the initial round, should not come round in his expected place. The absence was soon explained, for the Renault came slowly up the road minus its left rear tire and rim.

Szisz Disabled Because of Another's Accident.

In a few hurried words the situation was explained; on approaching the hairpin turn near the Dieppe end of the course, and less than a mile from the grandstand, Szisz was suddenly flagged to stop, Poegge's Mercedes having missed the turn and gone into the fence. Under the influence of the harsh application of the brakes tire and rim flew off the wheel, the car meanwhile continuing to run along on the fixed wheel for a distance of several hundred yards. When the racer was finally pulled up it was found that the two flanges had been so flattened that it was impossible to put on a new rim. The car was run up to the grandstand on the rim, pulled up in front of its tire station, examined by Louis Renault and Chairman Rene de Knyff, then ordered to be pushed off the course, the regulations forbidding the changing of a wheel and a continuation of the race being impossible under any other conditions.

There were more surprises and disappointments in store, for the entire Dietrich team of Duray, Rougier, and Minoia soon was put out of the running in quick succession. Duray, after covering two rounds, got back to the stand on foot and made the statement that his clutch collar had seized up. Rougier's failure was magneto trouble; of Minoia nothing was heard.

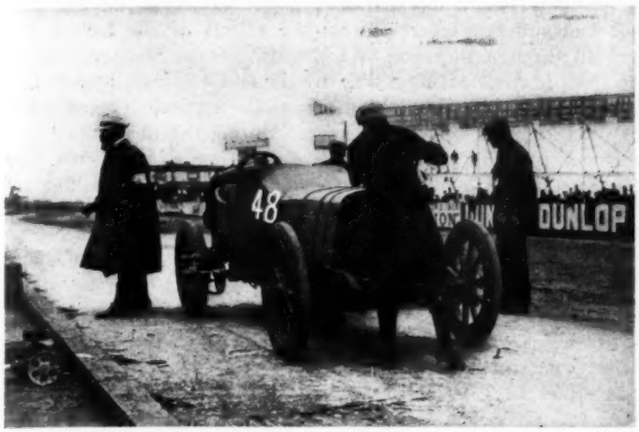
Salzer, the acrobatic Mercedes driver, who furnished the record round, completed a second trip round the triangle, then disappeared. Gaubert, one of the Porthos drivers, was unable to get round one of the bends with his long wheelbase car in a satisfactory manner, ran into a wall, smashed his wheel and retired. Simons, his team mate on No. 42 Porthos, met with a similar fate during the second round. Shannon of the Weigel and Piacenza of the Itala each failed after a single round.

Wagner and Nazzaro Join the Disabled.

It was early seen that the struggle was going to be a severe one between the Benz, Mercedes, and Brasier teams, with Bayard-Clement and Renault as runners-up. On the third round Wagner (Fiat) got first place, followed by Hemery (Benz), Lautenschlager (Mercedes), Nazzaro (Fiat), and Thery (Brazier).

The proud position was not maintained for long, Wagner retiring on his fourth round, and at about the same time Nazzaro was reported as having abandoned, the trouble, according to his team mate Wagner, being also a broken crankshaft. Thus all three Fiat cars were out a third of the distance.

On the fourth round also Baras, the second Brasier driver, went out of the race as the result of the cams becoming loose on their keyways, the cams and shaft on the Brasier racers not being integral as on the touring car, in order to allow finer adjustments and changes. Laxen, the driver of No. 30 Weigel, skidded on a turn very early in the race and was unable thereafter to use any other than his third and fourth speeds. Later, while taking a turn at Eu during his third lap his car turned completely over, without, however, any serious injury to the two men.



Jenatzy, Now a Mors Pilot, Replenishing.

Hemery and His German Benz Obtain Lead.

On the completion of the fourth round Hemery, the French driver of the German Benz, was in first position, with a lead of two minutes on Lautenschlager, the Mercedes conductor. Hanriot, also on a Benz, was third, with Thery running a very close fourth. Heath, who was driving his Panhard with remarkable dash, was in fifth place, Bablot on the Brasier in sixth, Cissac's Panhard seventh, and Hautvast, Clement, eighth.

Owing partly to the forcing of the pace, and in a certain measure to the fact that the road was exceptionally hard, tire trouble was abundant. At the end of the first, second, and fourth rounds Strang put into his station to change a punctured tire and take on replacements for those lost on the course. Guichard, the mechanician of the Thomas car, showed remarkable agility by climbing out to the bracket behind the gasoline tank and unstrapping the tires as the car was running down to the station. With the single fastener Michelin rim and prompt responses from those at the tire and gasoline station the changes were all made with remarkable speed.

Tire Changing Became an Important Factor.

Tire changing being an important factor in the race, it was interesting to notice the various arrangements adopted and methods of work of the different teams installed in the dugout "ravitaillement." Renault and Panhard both had pneumatic jacks which could be put under the axle of the car and the vehicle raised in less time than it often took to place the old type in position. Dietrich had a long double lever about seven feet in length by which the entire front or rear could be lifted off the ground on one pull. Half a dozen firms maintained their gasoline under pressure in a large tank with a long connection.

The Englishmen at the Austin stand distinguished themselves by unusual slowness in making tire changes, filling tanks, etc., sometimes as much as five or six minutes being lost waiting for appliances which ought to have been at hand or loitering around for no apparent reason. In view of the fact that the cars were running excellently it was hard to understand such indifference.

Cissac's Last Appearance Before His Fatality.

Lautenschlager to the Fore in the Fifth.

During the fifth round Lautenschlager on the Mercedes managed to wrest first place from Hemery on the Benz and to secure for himself a margin of three minutes. Hemery took second place, his companion Hanriot retained third, and Thery kept in fourth position. There was now something like consternation in the French camp, for unless Thery could wear down the three fast cars in front of him victory was assured to Germany, and, in any case, the home industry would be poorly represented in the first half dozen. Heath and Cissac, each on a Panhard, were running well, but could not be expected to secure first place except by accident, and the two Renaults handled by Caillois and Dimitri were too far down to get to the front.

On the termination of the sixth round the Mercedes-Benz duel was still in progress, Lautenschlager leading by four minutes on Hemery and five minutes on Hanriot (Benz). Thery, in fourth position, handled his car magnificently, the big blue Brasier whizzing past the grandstand as if on rails, the veteran driver slipping from third to fourth speed at a fixed spot opposite the grandstand with a sharp touch of the lever.

Thomas and Its Leaky Gasoline Tank.

While the leaders were on their sixth round Strang pulled into the station at the end of his fourth round with the gasoline tank leaking badly. It was quickly filled, fresh tires taken, and a start made for a fifth round, Strang believing that he could run on gravity with his large supply and keep sufficient fuel to get around the course. In other respects the car had shown satisfaction, and, though not as fast as the Germans and French, seemed capable of going the entire distance.

Hemery managed to close up on Lautenschlager during the seventh round until the difference between the two men was barely a minute. Hanriot was four minutes behind the leading Mercedes, and Thery was ten minutes in the rear. During this round Hemery was struck in the eye by a flying stone which broke his goggles and caused some of the glass to enter the eye. Though suffering intensely and only seeing with one eye, the Frenchman stubbornly refused to allow his car to be taken over by a reserve driver. One side of his head was horribly swollen, the effect of the tarred surface and dust aggravated the evil, but still the killing pace was maintained. Lautenschlager managed to draw away from Hemery one minute and from Thery four minutes, but the respective positions of the four leaders remained unchanged during the eighth round.

Victorious Mercedes on Its Final Round.

Down in the tire and gasoline pit the Mercedes assistants were in a frenzy of excitement as the last round commenced with Lautenschlager in the lead. Before starting off on what promised to give him the victory the German ran in to change front and rear tires, replacing the smooth one by non-skids, and to take a hasty drink of coffee. With a roar from a hundred German throats the white Mercedes was off again in pursuit of Hemery, who, having started thirty minutes earlier, was still leading in position but not in time.

Hemery finished first with his left rear tire flat and his left eye probably useless for the rest of his life. But he had started earlier than Lautenschlager carrying No. 35, and had to be content with second place, nine minutes behind the Mercedes. Hanriot, who had struggled hard to wrest second place from his mate, had to accept third, less than one minute behind.

At the commencement of the last round fourth place had seemed certain for Thery; it was even imagined by his supporters that a supreme effort could be made to run up to third or second position, first place being manifestly beyond his reach

Thery (Brasier), Whose Star Was Dimmed.

except in case of accident. Henry Brasier wandered up and down the track with a worried look on his face and glancing every few minutes at the announcement board for news of the passage of his crack driver. Louis Renault strode up and down nervously and anxiously, stopping now and again to explain how Caillois had been delayed by trouble with his dismountable rims. The minutes passed, but no reports came in of the approach of Thery. The time necessary to secure first place elapsed, then the cruel truth burst upon them that Thery, long looked upon as superior to breakdowns and accidents, had met with defeat. It was not, however, until an hour later that it was learned that the Brasier car had completely broken down during the last round, a cylinder having cracked.

Rigal, who earlier had been delayed by trouble with his dismountable rims, made a supreme effort and finally brought his Bayard-Clement into the fourth place vacated by Thery. Poegge, who had undone the first Renault, brought his Mercedes into fifth place; Joerns on the Opel secured sixth place, Erle on the Benz took seventh, and Dimitri, Renault, was classed eighth.

Heath, First Vanderbilt Winner, Unofficially Ninth.

Though George Heath was unable to officially finish the race, his car took ninth position. The winner of the first Vanderbilt

Fournier (Italia), Who Fought Unsuccessfully.

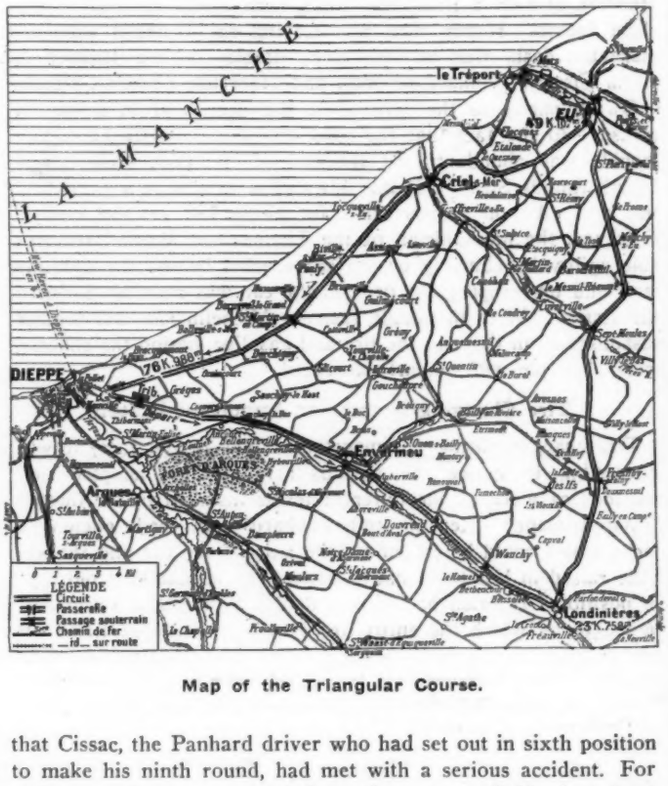
race had suffered severely from the effects of the tar on his eyes all through the race. At the end of the ninth round he declared that it was impossible for him to continue, and immediately Artois, who was in the gasoline station, jumped onto the road and was off with the car. During the final round the mechanic was thrown out of the car on one of the turns, the rear wheel passing over his left hand and severely crushing it.

Twenty-three out of the 48 starters finished the race, the only teams complete at the end being Benz with all three cars well placed and Mors with their two cars, sixteenth and seventeenth.

Henry Fournier, one of the several veterans who have returned to racing this year after a long absence, was delayed by tire and slight mechanical trouble early in the race, and later suffered intensely from the action of the tar on his eyes. On completing the course in twentieth position he had to be led away to the doctor, his eyesight having temporarily left him. Moore-Brabazon and Resta, the English drivers, were similarly in a pitiful condition, while Heath had to take to bed.

The Double Fatality of the Race.

A little time after the winner had been announced, and while the stands were comparatively empty, the rumor spread abroad



Map of the Triangular Course.

that Cissac, the Panhard driver who had set out in sixth position to make his ninth round, had met with a serious accident. For at least an hour no exact information was available, but about 3 o'clock the sad truth was made known that both driver and mechanic had been killed. The real cause of the disaster is not quite clear, for the only eye witness was a soldier who is able to supply but meager details. The probability is that while running on a straightaway between 80 and 90 miles an hour a front tire burst or the steering gear broke.

How Cissac Met His Unhappy End.

The spot where the accident took place was at Sept Meules, the road slightly descending and perfectly straight. The soldier declares that a fire burst, the machine swerved suddenly to one side, struck two trees, bounded to the opposite side of the road, then rolled over on itself two or three times. Cissac, who was 31 years of age, had graduated from the bicycle to the motorcycle, and from the motorcycle to the voiturette. The race in which he found his death is the first big automobile event in which he had participated.

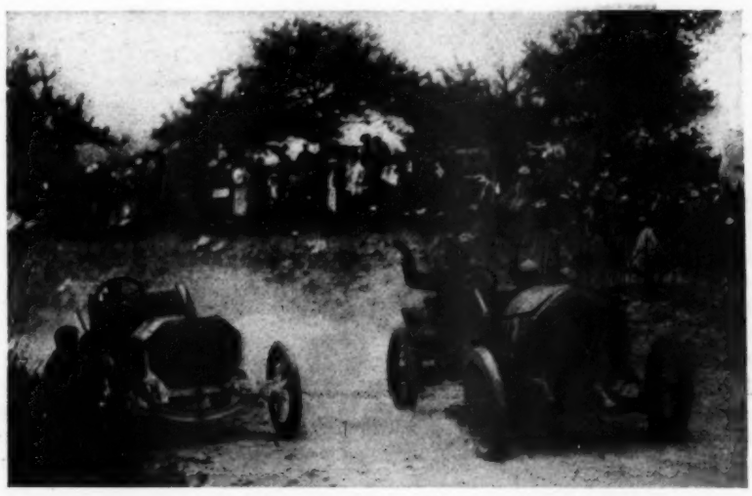
STRANG TELLS THE STORY OF THE AMERICAN ENTRANT

DIEPPE, July 7.—"When I was given the start in fifteenth position with the Thomas car," declared Louis Strang to THE AUTOMOBILE representative, "I had not any hopes of capturing the French Grand Prix. Against the 120-horsepower French, German and Italian racers which had been practicing on the course for months we could not expect to give more than a regularity display with our modest 90-horsepower car, which has never been on the course before.

Louis Strang.

"On the first round we ran without incident as far as Sept Meules, about half the distance. Here at the very spot where Gaubert overturned later on his Porthos, the Thomas skidded and blew out a tire. With the new Michelin rim it was but a matter of a minute or so to slip on a new tire and get under way again. We ran around to the grandstand, picked up a new tire to replace the burst one, and two minutes later were away again in good shape.

"On the second round we unluckily blew out a tire, and a few miles farther on lost off the top of our carbureter. One of the women spectators gave us a handkerchief with which we improvised a carbureter top that allowed us to run to the grandstand where the proper part could be obtained. Guichard, who rode with me as mechanic, did everything in his power to save time on the numerous occasions we had to stop to change tires. As we were getting near the grandstand he would leave his seat and scramble out behind the gasoline tank, where the tires were rung in a shallow pan, in order to have the straps unfastened by the time we pulled up. The spectators appeared to think that he had to get to the rear in order to hold the tank together or keep the tires in position.



Where the Thomas Ended Its Fight with a Leaking Gasoline Tank.

"During the first round all the cars ran at their highest possible speed, at an excessive speed in fact, for they were not able to maintain the killing pace. Our time on the Thomas was 54:34, compared with 36:31 for the fastest car; an Itala finished behind us and one car went out through accident. On the second round, owing to the loss of the top of our carbureter, our time was slower, the lap being covered in 1:02:56. Cagno's Itala was slower than we, and eleven fell out of the running altogether.

"On the third round we blew out a tire at Mesnil-Reaume, causing a delay of a couple of minutes, and also on taking a sharp turn at high speed threw Guichard out of the car. My mechanic was fortunately thrown clear of the wheels, and on picking himself up found he was none the worse for his mishap. Stopping the car and recranking the engine caused another two minutes' delay, but notwithstanding this we finished the round in 58 minutes, being faster than Landon on the Mors, Stricker on the Porthos, Gabriel on Bayard-Clement, Opel on Opel, Dimitri on the Renault, and Fornier on the Itala.

"The only exciting incident of the race, for us at any rate, occurred near Griel on our fourth round. At this spot a racing car which I believed to be one of the English Weigels had struck a tree and overturned, the tree being thrown across the road and the car to one side. The commissioners had called the soldiers to their aid in removing the tree, and in the meantime had flagged all cars. Just as we got there the obstruction had been removed, though two cars still stood on the roadside. The forward car was some French machine, the number of which I could not distinguish, the rear one was Fournier's Itala.

"When I saw the obstruction I was running wide open, the machine romping along at about 80 miles an hour, a speed that made it impossible for me to shut down in time. There was room for me to pass, for Fournier was standing behind the French car, and I consequently pulled out more to the left and rushed ahead. As I was approaching, however, Fournier hastily looked round, evidently thought he had time to get ahead of the French car before I arrived, and started to move along. He had either overestimated his power of getting away or had miscalculated my speed, for when the Thomas ran up we were all three abreast on a narrow road. Fournier pulled in to the standing car as closely as possible and I swerved out on to the grassy bank, went thumping along for several hundred yards and pulled up half a mile ahead with a burst tire. As Fournier went past me he indicated by signs that he had made a mistake in cutting in on me. Fortunately there was no other damage than the burst tire, but the escape is one of the closest I have ever had during my racing career. On this round our time was 57:01.

"There had been no trouble whatever with the engine; the only occasion on which we had lifted the bonnet was to replace the top of the carbureter. The first and second gears had seized just before we started in the race, but this did not hold us down in the least, it being possible to start away on the third and take all the hills on this gear.

"While finishing the fourth round Guichard discovered that the gasoline tank was leaking. We stopped at the tire station, cut out the pressure in order to preserve it for the oil and prepared to run on gravity. As the tank was exceptionally large we imagined it would be possible to run in this way and fill up each round. Instructions were therefore given to the helpers to be ready to give us gasoline on every lap.

"We ran along without a miss until we reached Londinieres, when, just as we got into the dangerous 'S' turn where the Renault and the Brasier turned over last year the gasoline ceased to flow to the carbureter. Coming down the winding road the tremendous thumping or the roll of the gasoline as it swung from one side of the tank to the other had strained the end still further until the fuel was running out in a steady stream. The 'S' turn is followed by a long winding ascent that we could not possibly climb with such a low level of fuel. The car was then standing in a very dangerous position owing to the peculiar nature of the bend and the high banking; racers coming round the corner were in great danger of running into it. We therefore applied to a commissaire for help to push it into a more exposed position. A dozen soldiers were sent on the road to help push the car slightly up the hill. We had a car perfectly fit in every respect except for the leaky tank."

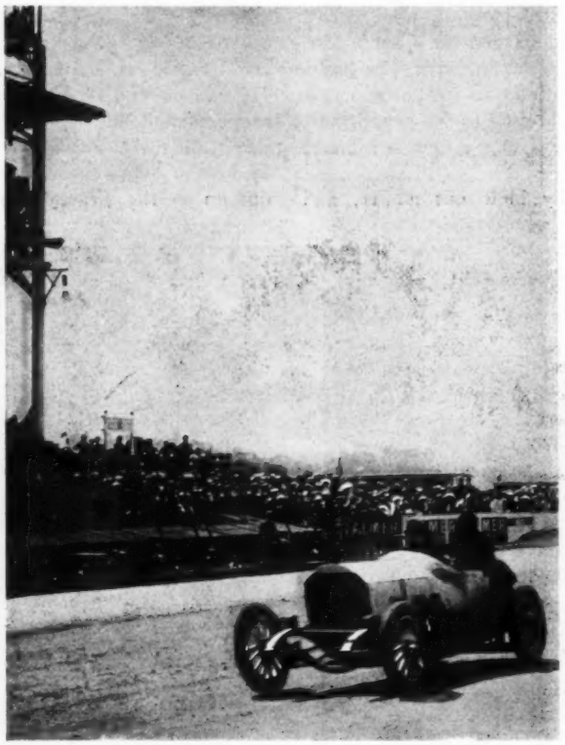
SINGLE-CYLINDER 50-MILES-AN-HOUR VOITURETTE WINNER

DIEPPE, July 6.—If there had been a little more internationalism in the event and no momentous Grand Prix to overshadow it, the voiturette race held to-day would have stood forth as an excellent sporting affair. Unfortunately all the starters, with the exception of two teams were supplied by home firms. Still more unfortunately for the foreign visitor and the casual automobilist, not more than ten per cent. of the drivers had ever been heard of in a racing capacity before, so that interest in the event was purely French.

The winner of the first voiturette Grand Prix was found in M. Guyot, who was the first to shoot over the starting line on a Delage one-lunger, and was the first to finish the race.

Six times in succession, without a stop of any kind whatever, the little single-cylinder car of less than four inches bore traveled round the triangle at an average speed of slightly more than 50 miles an hour. To be exact, his time for the 285.2 miles was 5:45:30 1-5, which works out at the rate of 50.02 miles an hour. Two years ago the suggestion of such a speed would have been laughed at as an impossibility; to-day it was expected, and when it was made, it was no surprise.

Second place went to Naudin, one of the favorites, who finished on his Sizaire-Naudin single cylinder car seven minutes behind the winner. Third and fourth places went to Lion Peugeot, and fifth again to Delage. All three Delage cars finished, and finished so well that they secured the regularity prize with 18 points. Lion Peugeot was second best on team performance with 22 points; Sizaire-Naudin coming third with 29 points. No other teams made all six rounds of the course complete.



Guyot and Delage Voiturette Winner.

The result of to-day's race has been a complete triumph for the single-cylinder car, which has been revived with considerable enthusiasm in France during the past two years. The few two-cylinders failed to make a showing. Isotta-Fraschini, Martini, and Rolland-Pilain each furnished three four-cylinder cars of the very highest class which looked good, ran well and sounded healthy, but which failed altogether to show the speed abilities of the more noisy single cylinders. For very small bores there are considerable mechanical difficulties in the construction of four-cylinder engines, and it is certain that with a limited cylinder area more power can be obtained from a single than from a multiple cylinder engine. In their own way the baby racers were every whit as regular as any of the 100-horsepower flyers which have been put on a European circuit and afforded as close finishes as will probably be seen in the greater race to-morrow.

There was some disappointment through the failure of the favorite team, Sizaire-Naudin, to make a more satisfactory showing. After winning the voiturette races two years in succession, Sizaire-Naudin built three ingenious and remarkably fine cars which were certainly the fastest of the lot on a short stretch, but which failed to give the best results on the long run. It was a severe weeding out test that the baby racers were put to, the hard, well-beaten-down road surface subjecting the small cars to severe vibration that soon told its tale in weakened mechanism. Before half the race was over there were a number of cars which could be seen struggling along painfully, the terrible strain of fifty miles an hour shaking the life out of them and making it impossible to continue.

Accidents were five in number, due doubtless to the inexperience of the drivers, but ending without any very serious results. Martin, driving the No. 7 Demesteer, left the road, overturned, was wounded on the head, and had to be carried to Eu hospital; the Truffault, of shock absorber fame, ran into the bridge at Ancourt, the result being a severe shaking for the driver and a shortened career for the car; No. 24 Guillemin-le-Gui turned over on a bend; an Aries smashed a wheel and ended its racing life in a field; No. 50 Martini was ditched by Driver Sanvico. Considering the number of cars and the fact that many of the drivers had not previously been in a pure speed contest, the list of accidents is satisfactorily small. The public was too well protected by stout barricades and lines of soldiers to ever be in any danger.

H. S. HOUPT ON THE RACE.

"Soon after reaching Dieppe," said Harry S. Houpt, manager of the Thomas entry, "I realized the very thorough manner in which the French, German, and Italian firms prepare for racing, and also saw that even with engine limitations their 1908 cars were faster than those of the previous year. With power well under a hundred and all of our rivals over the century mark, it only required slight calculation to understand how meager were our chances of being in the first dozen.

"Bue we went to work determined to do the best possible with our remodeled stock car, hoping to demonstrate reliability if nothing more. While the Thomas was pugnaciously covering four laps, interrupted by frequent tire troubles, there were some noted cars and drivers which disappeared from the scene. If Strang's gasoline tank had not been wrenched and sprung a leak I am confident that we would have finished the ten laps inside the time limit.

"We have learned much of the needs in racing an American car in Europe, and our experience will be very valuable."

SUMMARY OF THE VOITURETTE RACE.

No.	Car	Engine	Driver	Time
	DELAGE	1 cylinder De Dion.	Guyot	5:45:30 1/5
2	SIZAIRE-NAUDIN	1 cylinder	Naudin	5:52:06 3/5
3	LION PEUGEOT	1 cylinder	Goux	5:58:00 1/5
4	LION PEUGEOT	1 cylinder	Baillot	6:05:25
5	DELAGE	1 cylinder	Thomas	6:18:50
6	THIEULIN	1 cylinder	Viton	6:26:44
7	ALCYON	1 cylinder	Barriaux	6:32:37
8	ISOTTA-FRASCHINI	4 cylinders	Mazerati	6:36:39
9	SIZAIRE-NAUDIN	1 cylinder	Lebouc	6:36:57
10	MARTINI	4 cylinders	Beck	6:37:28 1/5
11	THIEULIN	1 cylinder	Schwoot	6:38:40 3/5
12	DELAGE	1 cylinder	Lucas	6:38:52
13	WERNER	1 cylinder	Vallee	6:40:37
14	ISOTTA-FRASCHINI	4 cylinders	Buzio	6:42:38
15	LION PEUGEOT	1 cylinder	Giuppone	6:50:40
16	ROLLAND PILAIN	4 cylinders	Louison	6:51:28
17	GUILLEMIN-LE-GUI	1 cylinder	D'Avaray	6:58:46
18	SIZAIRE-NAUDIN	1 cylinder	Sizaire	6:58:48
19	WERNER	1 cylinder	Molin	7:02:02
20	OASI GREGOIRE	2 cylinders	Gaste	7:17:03

THE UNIT SYSTEM OF POWER TRANSMISSION

By FRANK BEEMER, Member Society of Automobile Engineers.

PERHAPS one of the most serious problems that confronts the average automobile engineer in America and Europe to-day is the best and most economical way of transmitting power. There have been a large number of experiments made in various types which are commonly known as the transmission axle, the results of which are in favor of this so-called unit system. There are quite a number of reasons why this system should and does save considerable power.

First—That it requires but one universal joint, either single or double. This is one of the points which, most engineers agree, consumes considerable power, while the driving at various angles of the propeller or cardan shaft, through two or three universal joints is also very undesirable. This transmission applied on the rear axle allows the universal joint to be placed immediately back of the clutch and a considerable distance forward of the point where it would be placed in a car, with the transmission carried on the sub-frame, thus reducing the angularity of the propeller shaft to a minimum, and in most cases bringing it practically on a straight line with the crankshaft.

Second—The transmission and differential mechanism being placed in a single housing makes it very easy to have it in perfect alignment; this is one of the features that has proven from all experiments, to be the principal factor in the saving of power. It is quite necessary, and has been recommended by all ball and roller-bearing authorities, that to obtain the best results from the use of any type of anti-friction bearing it is absolutely necessary that the bearings be in perfect alignment. This question has been taken up in a very practical way, and it has been found that the unit system of power transmission permits freer action to the bearings, thus reducing the effect of the abnormal shocks and vibration to the bearings.

Efficiency Is Greatly Increased.

The tests that have been made of this system of transmitting power show a saving of from 16 to 20 per cent. of the power applied, or, in other words, it utilizes this much more power at the driving wheels, in the ordinary designs, this amount being consumed by universal joints, angularity of cardan shaft, disalignment of bearings, and many other sources of imperfection which are more easily taken care of in the transmission type of axle than in the various types of plain axles commonly used.

The automobile buyer of to-day in most cases considers very carefully the simplicity of the car, more than its style or appearance. He is not repeating the troubles which were experienced in the early days of automobiling, when many purchasers endeavored to secure a car which, in plain language, consisted of the greatest number of pieces for the money. It is a well-known fact that where the acme of simplicity lies is the maximum of durability and that means a minimum number of parts.

The automobile equipped with the unit system of power transmission has been taken by many reliable engineers as a parallel to the direct-connected power set or unit found in the latest power plants, having the engine, which corresponds to the automobile motor, and the generator, which is the equivalent of the transmission devices. This has been found to be the most practical and economical method of producing electricity, and it is this idea, carried out, as herein described, that forms one of the most economical ways of transmitting the power of an automobile motor to the road wheels through a system based on mechanical principles. It should appeal to most engineers as being one of the best and most practical methods of obtaining the result desired, as it shows a very high efficiency.

The saving of power, as above stated, is based principally upon hill-climbing tests which were made with several cars equipped with the unit transmission system. I have been present at a number of these tests, and have driven some of these cars, which were equipped with the transmission on the sub-frame, and have noted carefully the working of all parts of the car. I have also taken the same cars equipped with the transmission axle and in repeating the same tests have found that there is a very considerable increase in both speed and ease with which the motor will handle the car on the same hills.

I have also made certain speed tests with a car, with all parts in good condition. The motor at its very best was unable to secure on good roads more than 40 to 45 miles per hour, while the same car equipped with the transmission axle and with all conditions as nearly alike as possible, would develop, with ease, 55 miles and even as much as 60 miles per hour. These and other efficiency tests tend to prove that the unit system of power transmission is without question one of the long-looked-for improvements in automobile design.

There are a number of arguments advanced in favor of the side chain drive for heavy cars. A car equipped with this drive, all adjustments being as correct as they were when leaving the manufacturer's hands, or as they were intended to be by the designing engineer, will prove efficient to a certain degree. There are, however, a number of annoyances connected with this system of propelling a vehicle that are very unpleasant, the principal one being the noise caused by the chains. It is essential, in this design, to have what is commonly called a radius rod to insure the proper distance between the centers of the sprockets. These are frequently adjusted to different distances, causing the chain to ride on the side of the sprocket, adding undue wear.

Protection a Most Important Factor.

There are a large number of cars equipped with this system that are not provided with cases to protect them from dust and dirt, which quickly cause an extreme amount of wear, as the accumulation of dirt upon these parts absorbs the oil or grease used for lucbrication, and it is only a matter of a short time until the correct pitch of the sprocket and chains is destroyed, and it is at this time that the greatest inefficiency must arise. I have also noticed on a number of chain-driven cars, owing to the improper adjustments of the radius rods, that the rear axle does not set square or at right angles to the center of the car, which causes friction and undue strains upon the bearings, sprockets, chains, as well as excessive wear on the tires.

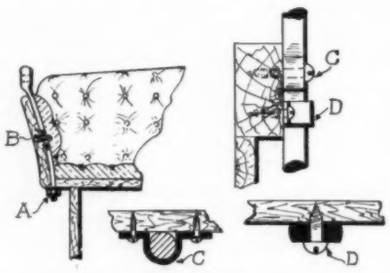
While we have a few of these discrepancies in the bevel-gear drive, it must be conceded that all the gears and other parts of the construction are properly protected from dust and dirt, and that at all times it has a sufficient amount of lubrication, which not only adds to the life of the parts, but reduces the friction, especially when working under excessive strains. Quite a large number, if not all, of these imperfections have been overcome in the unit transmission system, and the last, but not least, important feature of this system is the silence with which it transmits the power. I should say that it is physically impossible to obtain as quiet a running car with either the side-chain drive or with the car equipped with the transmission on the sub-frame and using the plain type axle, as it is with the unit system as has been herein described.

[The presentation of Mr. Beemer's paper at the Detroit meeting led to an interesting discussion during the course of which many points of value were brought out, the subject of power transmission on the automobile being one of vital import to the progressive designer. Among the engineers present were those who favored both sides of the question set forth as shown by their cars, some of which have adhered to the transmission axle and others to the subframe construction for several years. Written discussions on this very interesting subject were promised both *pro* and *con* and will appear later.—Ed.]

* Paper read before the Society of Automobile Engineers on the occasion of its Third Annual Summer meeting for 1908, held in Detroit, June 25-27.

GOOD POINTERS FOR THE AMATEUR REPAIRMAN

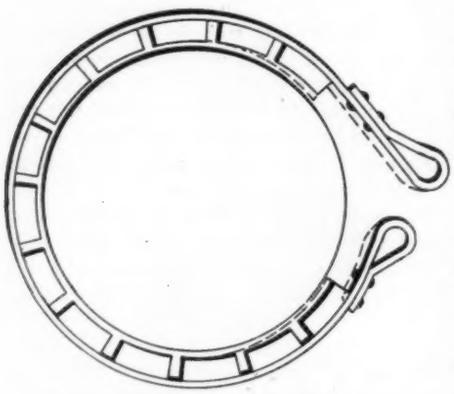
CAPE cart hood irons are sometimes attached to the front seat as illustrated, which indicates the appearance inside the arm of the front seat with the upholstery stripped away. The lower end of the iron goes through the overhanging part of the seat, and the nut, A, is on the outside. The iron is steadied by an ordinary wood screw, B, which goes into the framing of the arm. If the iron is curved as the sketch shows, there is a considerable leverage on B, tending to break it off. If it breaks, the free movement of the arm tears the upholstery. A permanent job can be made by drilling the hole through which B passes and putting in a slightly larger screw, C, and also putting on a strap, D, beneath it. This strap, D, then does the greater part of the work, and has the effect of causing any twist applied to the iron to be held by the screw, C, where it enters the wood, instead of exerting a leverage against it just under the head.



Details of Ironing for Cape Top.

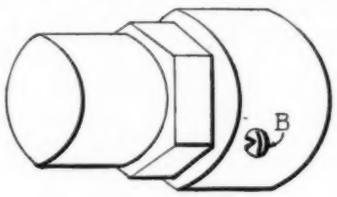
About Fitting New Brake Bands.

Brake bands having cast iron or brass shoes riveted to sheet steel bands expand and contract through a very small diameter, and when new they must be very carefully fitted to the brake drums or they will drag and heat. As one cannot depend on their being bent to precisely the right diameter, when they come from the factory, it will save time to test this point before putting them in place. This is easily done and with sufficient accuracy by drawing a circle on a board and laying the new bands over this circle to see how nearly they match. If the brake drums can be calipered the circle should be of the same diameter as the drums, and the bands should clear this circle somewhat as shown exaggerated in the illustration, since the principal bending of the bands will be at the bottom portion. This applies if the weight of the bands is supported clear of the drums. In some cars this is not the case and the upper portions of the shoes rest constantly on the drums. This requires these upper portions to be bent downward slightly, to almost their gripping position, as indicated by the dotted lines in the upper part of the illustration.


How the Brake Band Should Lie.

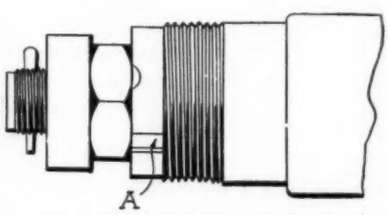
How to Lock a Loose Hub Cap.

A hub cap, particularly of a plain bearing car whose hubs are greased instead of oiled, will unscrew rather easily if its threads are a loose fit. This is particularly the case with the right-hand hub caps, since the viscosity of the grease results in a constant effort to unscrew them. As good a way as any to lock the cap is to chip the notch, A, in the flange of the bronze bushing in the hub, and to arrange a set screw in the cap to enter this notch. If the set screw is of the ordinary hardened sort and holds only by its own pressure, it is liable to shake loose some time or other. A better plan is to use a button head ¼-20 screw of ordinary steel, running the threads clear up to the head by means of a die. A notch is filed in the head of the screw, as shown at B, and the screw is cut off to such a length that the head will bottom on the cap when the end of the screw enters the notch A, then a burr is raised at B in the brass of the cap with a prick punch; thus the screw is secured against turning until it is wanted to do so. The same expedient is useful in many other places where it is desired to keep a screw from loosening in service.



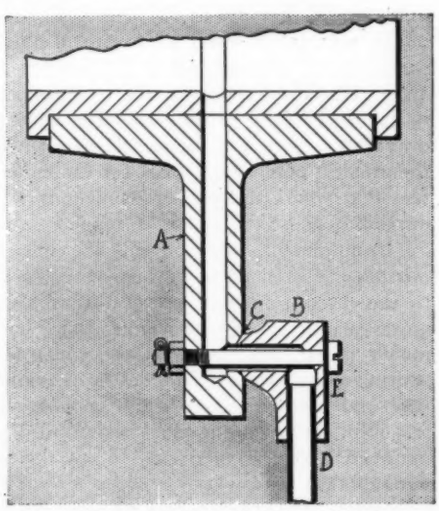
A Permanent Oil Pipe Connection.

The ordinary pipe fittings are not always reliable for oil and gasoline pipes subject to vibration, and where the failure of a connection would involve serious consequences, as in racing engines, a better form of connection is desirable. The illustration shows a special form of union devised by Crane & Whitman, of Bayonne, N. J., for important oil pipes. It is shown in service carrying oil to the under side of a main shaft bearing. The bottom cap A of the bearing is deeply ribbed and the oil duct is drilled in the rib. The connection itself takes the form of an L-shaped steel union B having a ground seat at C and brazed to the oil pipe at D. A special screw E passes through the union and is threaded into the further side of the rib. The oil goes around the screw, and a lock nut and cotter pin insure against coming loose under even the most strenuous conditions of service.



To Lock a Hub Cap in Place.

Should an oiler reservoir begin leaking where one of the oil leads attach to it, the only suitable solution is the immediate soldering of it. The use of adhesive tape will sometimes suffice for a time, but the vibration generally renders it a poor repair. A small soldering iron is a most valuable part of a repair kit, and with it a soldering repair can be made in less than 20 minutes. Oilers have been taken off, a fire built by the roadside and the soldering done in less than 15 minutes, but the amateur who has not been accustomed to handling a soldering iron can hardly expect to do as expeditious a job as this, for, though a simple tool, considerable knack is required.



To Prevent Breaking by Vibration.

LETTERS INTERESTING AND INSTRUCTIVE

THE IRREPRESSIBLE QUERY COMES UP AGAIN.

Editor THE AUTOMOBILE:

[1,464.]—Is there some engineer, designer or an authority on gasoline engines that will explain to a novice who is having his first experience with a single-cylinder car, in language that I can understand, why it is that a weak, or, as it is termed by some, a lean mixture, gives carbureter shots in a four-cycle engine?

Williamsport, Pa. NOVICE.

While the question does not appear to be aimed at us directly in this instance, we will attempt to assume one of the three roles mentioned and try to fulfil the qualifications as set forth. Bearing in mind that the mixture is the fuel of the engine, and that as in a stove, the character of the fuel influences its manner of burning, it will be evident that like poor wood, slaty coal, or other imperfect fuel, a weak mixture is a slow burner. This is point number one. Proportionate to the speed at which it is running, the motor has a certain sharply defined period of time in which it must complete each part of its cycle, if it is to operate satisfactorily. Should the parts of the cycle lap, or run over into one another, there is bound to be a hitch of some kind. The use of a very weak mixture causes just such a hitch by reason of the fact that it continues burning for some time after the completion of the part of the cycle during which it is supposed to function, *i. e.*, the power stroke. In fact, it is still burning when the inlet valve opens to take in a fresh charge, and as its burning in the cylinder maintains considerable pressure therein, the latter, on the lift of the inlet valve, escapes through it and the carbureter with a pop, exactly similar to that of an unmuffled exhaust except that it is weaker. The remedy is more gas or less air, or sometimes both, and to find out just how much of each is required, start the motor and very gradually cut down its gasoline supply at the needle valve of the carbureter until the motor begins to miss. Then as slowly increase the supply until the motor will run steadily and without missing on the minimum opening of the needle valve. Lock the latter in place. Then speed the motor up by opening the throttle and adjust the spring of the auxiliary intake on the carbureter until the motor is receiving sufficient air to enable it to run and develop plenty of power at all speeds. Our columns are thrown open to all and any who can be more explicit and still brief on the subject without going into technicalities or language not understood by the untechnical.

CAUSE OF A MYSTERIOUS NOISE.

Editor THE AUTOMOBILE:

[1,465.]—I own a Mitchell roadster. The car runs good on a level or up grade, but when I throw the clutch out with my foot there is a clashing noise somewhere. It seems as if the noise came from the transmission case, but I examined that while running and standing still, and I do not locate the noise. If you can help me with this through the columns of "Letters Interesting and Instructive," I will appreciate it. Yours very truly GOODWILL.

Greencastle, Ind.

It seems quite probable that the noise may be caused by the striking or interference of some of the parts of the clutch-operating mechanism, when the latter is worked to disengage the clutch, or again, some one of the parts may have loosened up sufficiently to permit it to strike the frame or a brace when the clutch is disengaged. Remove the footboards and watch the operation of the different parts between the pedal and clutch itself when operated with the car under way. If not in the operating mechanism, the trouble may probably be found to lie in the clutch itself, and this seems more likely, as contact by the spinning male member with some stationary part that has gotten out of place would be very apt to give rise to a noise similar to clashing. If any of our readers have had a similar experience on the same make of car, we would be pleased to learn of the remedy they applied.

PROPER SIZE OF EXHAUST MANIFOLD.

Editor THE AUTOMOBILE:

[1,466.]—I have an old four-cylinder engine, bore 4 1-4 inches, but the exhaust piping does not seem to be much more than 1 inch in diameter. It is a smooth, wrought-iron pipe and gets very hot when the engine has been running for any length of time. What is the cause of this and what can be done to remedy it?

Morristown, N. J. AUTOIST.

Both valves and manifolds that were very much too small for the bore of the motor constituted grave defects of some of the early multiple-cylinder automobile motors. The exhaust outlet, or manifold, that you speak of is very much too small for the size of the motor. It must be borne in mind that at the end of the power stroke the gases have been expanded to many times their original volume, so that a much larger pipe is required to carry them away quickly than is necessary to conduct the cold gas to the cylinder before explosion. These gases are still at a very high temperature when exhausted and unless disposed of very rapidly they naturally overheat anything that they come in contact with. Such a small manifold is also responsible for putting back pressure on the engine and causes a loss of power. It has been noticeable in the past few years that several designers have adopted exhaust manifolds cast with cooling flanges in order to insure as quick a drop in the temperature as possible. Some of these manifolds are really intended to act as mufflers and are made quite large. As a matter of fact, the size is only limited by the weight and appearance and the aim is usually to make the outlet as large as possible within these limits. If you will use a 2-inch wrought-iron pipe as a manifold it should make a great improvement and will certainly overcome the heating you speak of.

EXPLAINING THE "LEAD" GIVEN INLET VALVES.

Editor THE AUTOMOBILE:

[1,467.]—After having threshed the thing out at some length between ourselves, we have decided to refer the matter to a higher authority for settlement. The bone of contention is the practice of giving the inlet valve a "lead" in the modern high-speed automobile motor. My opponent contends that such a thing would not be possible as if the inlet valve were held open after the piston had passed the dead center and began to rise on the compression stroke a considerable part of the gases would naturally be forced back into the manifold and the power of the motor would accordingly be reduced. On the other hand, I contend that this is not so and that it is, moreover, quite common practice to give the inlet valves a rather considerable lead, as I have actually found this to be the case through examining the motors while in the course of dismounting or reassembling them. I have been told that this is done to insure the filling of the cylinder with the greatest amount of charge possible, and I believe that this is the reason, but do not know just why it should be so. Will you kindly shed a little light on the matter? HENRY EDGREN.

Fort Worth, Tex.

This appears to be a matter that forms quite a puzzle to many who are not familiar with the internal workings of the automobile motor. The higher the speed of the motor the greater the necessity for giving both the exhaust and the inlet valves what has come to be known as a "lead," in that they open before the completion of the particular part of the cycle that they are intended to perform. It must be borne in mind that time is required to set a thing in motion and to stop it, regardless of its form or weight, and this is true of a gas, which has inertia the same as other substances. Further, an appreciable period, though very short indeed, is required for the creation of the vacuum in the cylinder. The gas does not rush into the combustion chamber the moment the inlet valve opens; the piston must have traveled downward a bit before this takes place and the column of gas then rushing in attains an increasing velocity as the piston approaches the lower center. In fact, it is at its greatest

speed when the piston reaches the lower dead center so that the first part of its return travel has little or no effect on the incoming gas, which accordingly continues to pour into the cylinder, until the piston reaches a point on its upward stroke, where its compression is sufficient to overcome the inertia of the stream of gas, and this is the point at which most designers of high-speed engines set the inlet valve to close, thus permitting of the suction of the greatest possible quantity of fresh gas.

ADVANTAGES OF AN EXTREMELY LONG STROKE.

Editor THE AUTOMOBILE:

[1,468.]—I am an advocate of the horizontal opposed type of motor with its slow speed and easy action, and think it is ideal for automobile work. I have owned no less than three of the two-cylinder cars of this style and have never found that the lack of the extra cylinders handicapped me either in getting there or in arriving with all the speed that the law allows. I understand that both weight and lack of room are factors that enter into the question, but I would like to know why it would not be possible to greatly increase the length of the stroke of the average motor of this type, thus further reducing its speed and increasing its power at the same time. Would this not make a much more durable and easy running engine than is now the case and would its advantages not be sufficient to more than offset its drawbacks?

New Britain, Conn. J. H. H.

You are evidently proceeding on the assumption that where a little bit does a great deal of good a large dose will be bound to effect an immediate and absolute cure. As in medicine and many other things, following this plan works out by abruptly terminating all further necessity for experiment. Within certain closely defined limits an increase in the length of the stroke, thus making it exceed the diameter of the bore slightly, is a great advantage, but carrying it further results conversely. It must be borne in mind that the weight of the motor increases at an extremely rapid rate, with every addition to the length of the stroke, and furthermore, that the point beyond which it is no longer advantageous to expand the charge is very quickly reached. The hot gases of the burning charge present on the power stroke of the internal combustion motor cannot be compared with steam, as they undergo an extremely rapid drop in pressure and temperature, so that so far as any real gain is concerned the last part of an extra long stroke is practically wasted. As already mentioned, the factor of weight is by far the most important. It would mean something like 150 to 250 pounds additional to put 2 or 2 1-2 inches on the stroke of the average cylinder of a two-cylinder horizontal opposed engine of 5 inches bore, and the actual gain would be very slight, if, indeed, the extra load does not offset it entirely.

MORE ABOUT FRICTION TYPES OF DRIVE.

Editor THE AUTOMOBILE:

[1,469.]—Noting the inquiry of a correspondent in regard to the merits of friction-driven cars on steep hills, etc., I beg to ask your opinion as to the comparative merits of friction drive and other forms of transmission. Which form would deliver the largest percentage of power at the drive wheels? I believe this column in this paper is of great value to your subscribers.

Mankato, Minn. X MINNESOTA.

Concerning the relative merits of the friction as compared with other types of power transmission on the automobile, we would refer to letters which have recently appeared in these columns under a similar heading. Where its relative efficiency is concerned, it is well known that for certain power purposes where the load is constant and uniform that the friction drive shows a high efficiency and is very practical. Unfortunately, however, such conditions do not obtain on the automobile. It has been shown by an authority on the subject that where the slip exceeds 4 per cent. the drive falls off considerably in efficiency and as the conditions of service in automobile work are about the worst imaginable, it would appear to be difficult to prevent this. The load is never constant for any length of time and it is about as far from being uniform as it possibly can be. Still the friction drive has proven considerable of a success on a number of light cars, and the experience of the manufacturers of the latter would seem to show that even under such very adverse circumstances as the necessity for pulling a car out of a hole, or starting from dead on a very steep hill, the friction drive has been able to acquit itself with credit.

GETTING MORE POWER FROM AN OLD AUTOCAR.

Editor THE AUTOMOBILE:

[1,470.]—For the benefit of your readers I would like to give my experience for four years with a two-cylinder Autocar.

The first year I was disappointed in the power, but not in the reliability of the car. The second year I had trouble which took nearly the whole season to locate, and here lies the point of my tale. The car could go sometimes and not others, one cylinder was much weaker than the other and likely to stop at any time. I tried everything but finally traced the trouble down to the inlet valves, which are of the suction type, not positively operated, and found that weaker valve springs helped some and this led to the discovery that the shoulders on the valve stems had worn away, allowing the valves to open so far that the suction could not maintain the opening and the valves fluttered during suction stroke. A pair of washers on the valve stems limiting the opening to less than a quarter of an inch completely cured the troubles.

Third year I had my company make cylinders half inch larger in the bore, which increased the power nearly 25 per cent. Fourth year put plates five-sixteenths of an inch thick on the inside of the cylinder heads, raising the compression to a point just short of premature ignition, giving a full 10 per cent. increase in power.

Fifth year ran six dry cells in series instead of four, which gave increase in power. The car seems now to have plenty of power and takes all ordinary hills with four passengers quite easily. I am sure it will pay anyone still using a 1904 Autocar to see to the suction valves and to raise the compression, even if it is not considered advisable to go to the expense of enlarging the cylinders. I wish to take this opportunity to say that the car has stood four years of banging over all sorts of roads and is to-day good for another four.

A. G. ROBB,

Amherst, N. S., Canada. Manager Atlantic Auto Co., Ltd.

A GOOD ONE FOR THE IDEAL CAR SEEKER.

Editor THE AUTOMOBILE:

[1,471.]—Referring to letter 1,446, we build a limited number of six-cylinder cars of the following specifications: Cylinders, 3 7-8 by 3 1-2 inches; wheelbase, 110 inches; shaft drive to Cameron patented combination rear axle, and selective type gear-set; rear axle, floating type; rear springs, full elliptic, 1 1-2 inches wide, 34 inches long, with rebound clip on each leaf; front springs, three-quarter elliptic, 1 1-2 inches wide; upper half, 17 inches long, lower half, 34 inches long; all springs five-leaf in each section; wheels, light artillery type with quick detachable 32 by 3 1-2-inch tires; body, four passenger, side entrance, of light construction; annular bearings throughout, with exception of the motor; weight complete, 1,700 pounds; ignition, high-tension magneto and batteries; speed with full load, 60 miles an hour, or geared to a top speed of fifty (50) miles per hour when specified. The motor is, of course, our air-cooled type.

If your correspondent (C. W. L., Norwich, N. Y.) thinks this car might be near enough his ideal to desire further information, we should be very glad to supply it.

CAMERON CAR CO.,

Beverly, Mass. H. W. ROHERTY, Sales Mgr.

ANSWERING THE IDEAL CAR PURCHASER.

Editor THE AUTOMOBILE:

[1,472.]—We note in your "Letters Interesting and Instructive" query No. 1,446, in the July 2 issue. Would state that we are making automobiles very near specifications as follows:

Engine, four-cylinder, 5 1-16 by 6; weight, 300 pounds; engine placed crosswise in middle; shaft drive to floating type rear axle; platform springs in front; scroll elliptic in rear; wheels, artillery type; tires, 36 by 3 1-2, quick detachable; weight, 1,900 pounds.

Council Bluffs, Ia. L. P. MADSEN.

ANOTHER OFFER FOR THE IDEAL CAR BUYER.

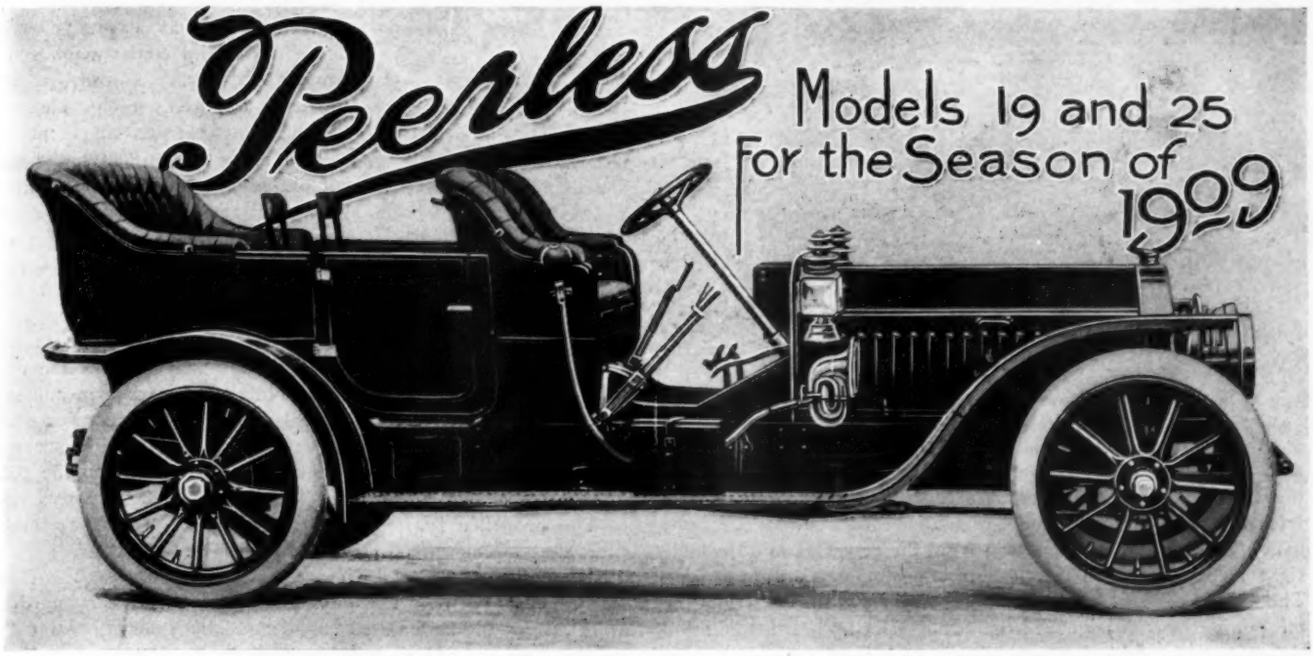
Editor THE AUTOMOBILE:

[1,473.]—In the issue of "The Automobile" of July 2 we noticed a letter from Norwich, N. Y., signed by C. W. L. The letter in question bears the caption, "Buyer Looks for His Ideal Car." In this connection, we beg to call attention to our new six-cylinder Model L car, which sells for $3,000. Upon examination of the specifications, I think C. W. L. will find that this is the car he wants.

E. R. THOMAS MOTOR COMPANY,

Buffalo, N. Y. F. L. Faurote, Adv. Mgr.

Peerless Models 19 and 25 For the Season of 1909

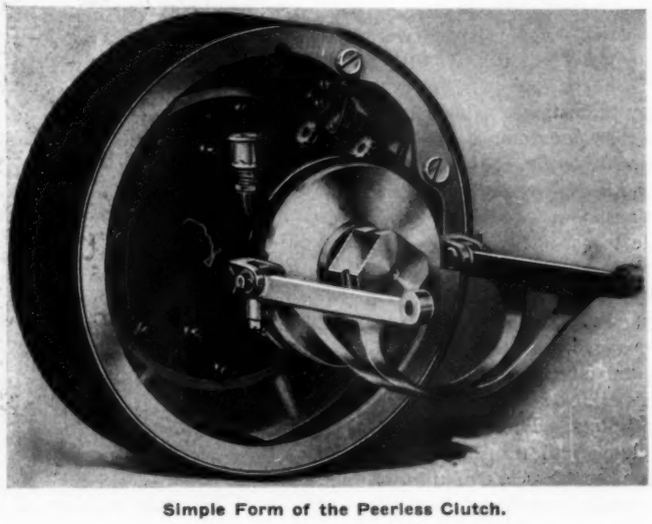


The Six-cylinder Peerless Presents Artistic and Attractive Lines in Design.

TWO models will be manufactured by the Peerless Motor Car Company of Cleveland, Ohio, for the season of 1909, say the makers, and the appended description of the newcomers is practically a verbatim reproduction of their advance sheet—material that is but infrequently available in its original form, owing to the publicity man indulging in too free flights of fancy in describing the car's advantages. "These models are styled Model 19 and Model 25. The former model is rated at thirty horsepower and is a four-cylinder car, while the latter model is rated fifty horsepower with six cylinders. These two models will be ready for delivery early in September.

"The changes for 1909 Peerless cars are in no way radical, but are such as to secure a refinement and improvement in some respects of the already satisfactory 1906, 1907 and 1908 models. The principal changes are: An increased wheelbase, which provides for a greater distance between the dash and front seats, for a slightly lengthened engine hood, and allows for setting the radiator further back on the frame than on the 1908 models; improved front and rear fender design, with increased clearance for wheels; new adjustable universal shaft connections between clutch and transmission; improved universal propeller shaft driving joints, as well as a new and improved universal coupling between live axle and differential; a new style silent running water pump; a method of lubrication.

"Especial attention has been directed to the design and construction of each one of the universal driving joints throughout the car, and important improvements have been achieved, both in respect to strength and wearing qualities. The cylinder dimensions for the new Models 19 and 25 are 4 7-8-inch bore and 5 1-2-inch stroke. The cylinders are cast in pairs, with offset intake and exhaust valves on opposite sides, and are carefully bored, reamed, ground, and then lapped out with a special polishing preparation with pistons and rings in place, all of which secures perfect compression and insures a motor that will run very smoothly.

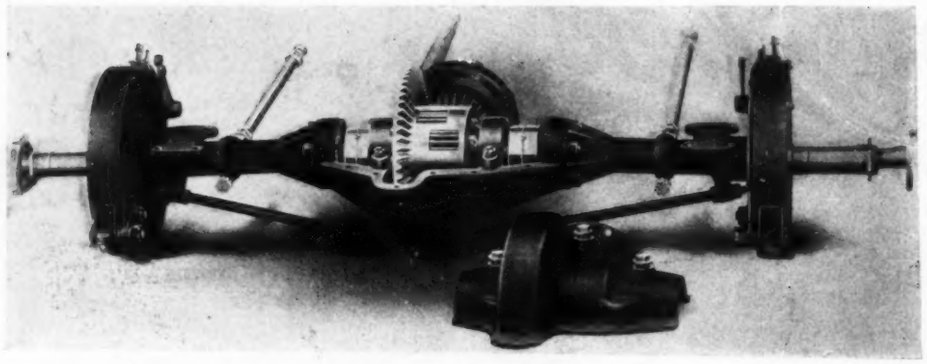


Simple Form of the Peerless Clutch.

"The water jackets are spacious, allowing the greatest freedom for water circulation throughout the motor. These jackets taper so that the greatest amount of water is at the top, which is the point of highest temperature. The large openings over the water jackets provide for a careful and certain removal of core sand, and are covered with brass plates. The crank case proper is a single aluminum casting, designed for lightness and strength. Access to connecting rods and bearings is through aluminum hand hole plates on the bottom of the crank case. Each of these hand hole plates is fitted with a patented device, which consists of a deep pocket or groove at its lowest point, into which drops any dirt or sediment from the oil.

"The crankshaft is a solid one-piece drop forging, heat-treated and ground accurately to size. The front bearing is an annular type ball-bearing, fitted with a stuffing box to prevent leakage of oil. The rear bearings are of large size, provided with oil grooves and pockets so that they are constantly flushed with oil by splash from the crank pits.

"Every gear of the motor is housed in an oil-tight compartment of the crankcase and runs in oil. By housing all gears an almost noiseless motor is secured and the wear of the working parts reduced to a minimum. The intake and exhaust valves are made of an imported special alloy valve steel, and are taper-seated, mechanically operated and interchangeable. The carbureter is automatic in its action and provides a suitable mixture for varying motor speeds. A patented double seated throttle is used, admitting the mixtures to intake pipes through both seats, so that there is no suction force to overcome, and consequently the throttle is controlled smoothly and evenly under the varying conditions of load and grade. The throttle is controlled by a hand lever on the steering wheel, by foot accelerator pedal and by a governor located on the water pump shaft, the latter being automatic.



Assembly of the Peerless Rear Axle Driving Unit.

"A mechanical oiler, gear driven, is located on the exhaust side of the motor, and supplies oil to each cylinder and to the compartments of the crankcase. The oil reservoir is cast integral with the aluminum crankcase and holds over one gallon of oil. The oil is pumped from the reservoir to adjustable sight feeds located on the dash in constant view of the driver. The crankcase compartments are supplied with oil from the oil pump through sight feeds as described, and in addition thereto may be replenished by means of a hand pump, which is made a part of the oil reservoir. This pump is fitted with an indicator so that the oil may be directed into any one of the compartments at will. The level of the oil in the crankcase compartments is regulated by means of standpipes extending upward through the bottom cover. These standpipes are fitted with petcocks underneath the car, which, when opened, determine the proper oil level in the compartments.

"The radiator is the well-known Peerless design (patented) of the same construction as used in 1908, and of ample size to properly cool the motor under the most trying conditions of service. The circulation of water is affected by a herringbone gear pump, which is silent in its operation and highly efficient. The fan is driven by bevel gears with a friction disc joining the driving shaft with hub of fan spider. By this construction no belts or pulleys are used and the fan shaft is operated by gears directly driven from the half time gears on the motor.

"The ignition system consists of the Eisemann low-tension magneto, the current of which passes through an induction coil on the dash, giving a high-tension current at the spark plugs. In addition to the magneto system, and entirely separate, there is the same coil, commutator and battery system which has always been used on Peerless cars. The advantage of this double system of ignition is that either may be used independently; that is to say, the commutator, spark coil and battery may be entirely removed from the car, and there still remains a perfect magneto system of ignition; or, on the other hand, the magneto may be taken off and there is still the same well-known and thoroughly tested battery system which we have used for many years. All wires are connected with their terminals by spring attachment, so that there are no thumb nuts to release, and the wires may be instantly detached and the magneto entirely removed in less than one minute. By means of a solid rubber wire bar the method of wiring has been changed with respect to shortening the length of wires, which makes the whole ignition system simple, compact and of highly perfected appearance, and almost impossible to short circuit or to mistake the right connections at the spark plugs.

"The clutch is the internal expanding band type. It engages smoothly without shock, and being light and perfectly balanced, it stops rotating as soon as disengaged, so that the gears may be shifted noiselessly. Between the clutch and transmission is a shaft made of special alloy steel, the ends of which are forked and fitted into universal joints. These joints connect with the squared ends of the clutch and transmission shafts. The object of the universal joints is to take care of the twisting of the frame over very rough roads, and consequent loss of power as well as excessive wear. This forked end construction is capable of very easy adjustment, and the parts are easily removable.

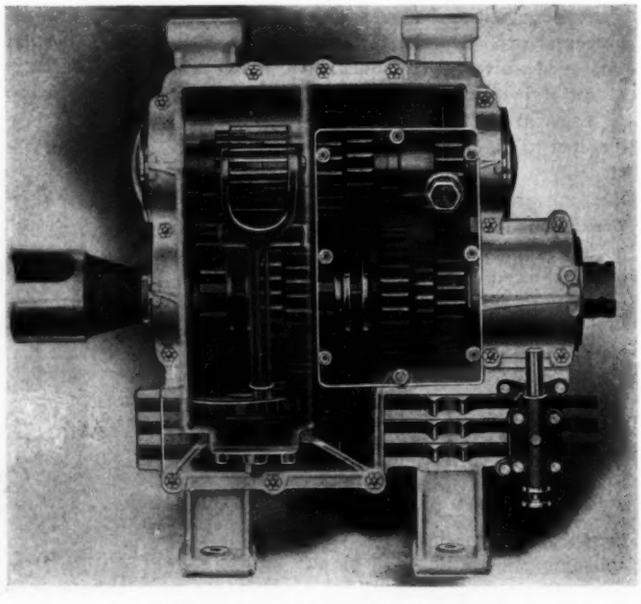
"The gear case is an aluminum casting made in two parts, the base containing the main shaft, driving gears and the countershaft with its pinions. The upper part of the speed case holds the mechanism for engaging the reverse gear. The gears and pinions are meshed by sliding gears of the selective type. The mechanism for meshing the reverse consists of a rack, rocker arm and sector with a cam. The feature of the change speed mechanism is the locking device which prevents the gears from sliding out of place, without changing the position of the change speed lever operated from the driver's side.

"The propeller shaft is fitted with universal joints at both ends, thus taking care of any relative movement.

"The type of universal joint on the propeller shaft of the 1909 cars has not been changed, but the joint has been improved in detail by adding ball bearings, and enlarging the joint for greater strength and wearing qualities.

"The universal joint pin of the new models now has a groove accurately ground and filled with balls, upon which an annular ball race turns. This ball race takes the place of the rollers on the older models, and its ease of turning and the assurance of being well oiled greatly improve the efficiency of the joint. The materials of the joints are of specially treated alloy steel, ground accurately to size. The joint is provided with a steel cover to house the rollers and hold sufficient grease to properly lubricate the joint.

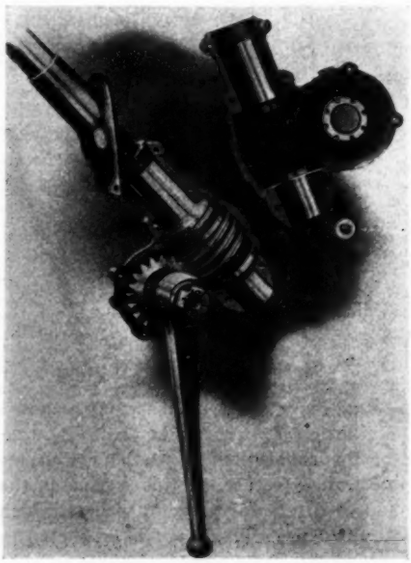
"All the weight and load of the car is carried on heavy gauge steel axle tubes fitted into a cast-steel differential case, centrally located between the rear wheels. The power is transmitted by means of bevel gears, differential and live axle shafts operating clutch plates engaging with the wheel hub. On each side of the driving gears, and connecting with the live axle, are improved universal joint connections. This cardan or universal joint in the rear axle allows for the camber and dishing of the rear wheels, and is of a different type than those of previous years. By virtue of the greatly increased number of engaging points (14) over the previous year's construction (2), the uni-



Plan View of the Change Speed Gear Set.

versal action is more uniform, the wearing qualities greatly improved, and from the fact that the driving or engaging faces are at a much greater distance from the center of the shaft than on the older types the construction is greatly increased in strength. They are made of imported alloy steel specially heat-treated to withstand rigorous usage.

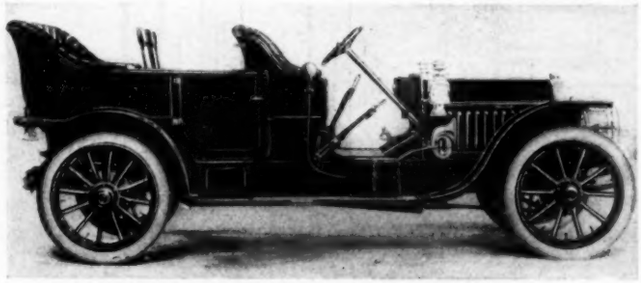
"The front axle is a solid one-piece drop forging of I-beam section with spring saddles forged integral with the axle. The center of the front axle is the lowest point of the car. The pivot joint of the steering knuckle is supported on specially imported self-seating ball-bearings of large size. The steering mechanism is of the worm and gear type. The gear is a complete wheel, and being forged with the shaft assures the greatest possible strength, besides providing a greater wearing surface. Thrust bearings of special imported design are placed above and below the worm, and are spherical, self-seating. An 18-inch hand steering wheel is used on both new models. The steel rod connecting the steering knuckles is placed behind the front axle, where it is securely protected from any road obstruction or injury.



Details of Peerless Steering Mechanism.

"The frame is cold-rolled steel, of truss pattern, with sub-frame on which engine and transmission are carried. The drop frame adopted in 1906 is a feature of great importance, since the center of gravity of the car and load is nearer the ground, and yet does not interfere with the road clearance. The drop frame insures more comfort in riding, and the car may be handled more easily and safely at high speeds.

"Springs are made by Lemoine, of France, of the best grade silico-manganese steel procurable. Both front and rear springs are long and flat, and are highly polished lengthwise, which gives easy action, and in combination with the drop frame insures an easy riding car, adapted to rough country roads. Thirty-six-inch wheels, artillery type with dished spokes, are used both front and rear. The dished spoke construction best withstands any side strains, besides enabling the spokes and wheels to be made much lighter with more safety than wheels not dished. The body is the Peerless type, the rear seat being wide and the tonneau long and spacious. There is ample room for carrying five people comfortably in the tonneau. Seats have been designed of the folding type, which are practical and comfortable, and are very easily removed. A new patented door latch provides a simple and easy method of opening the door from the tonneau seat. The closed and touring bodies are interchangeable.



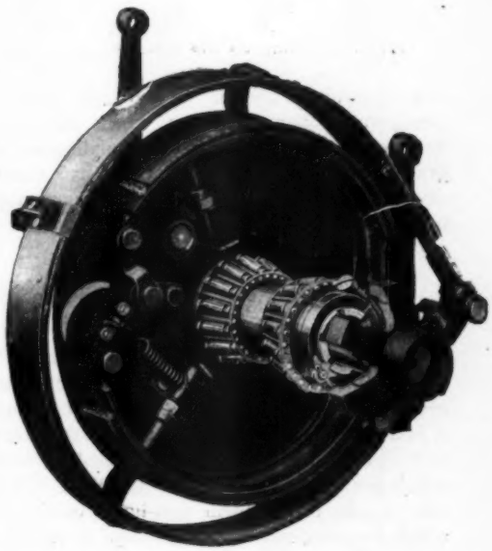
Four-cylinder, 30-horsepower Peerless Touring Car.

SOME NEW TIMKEN PRODUCTS FOR 1908.

Among the new products listed by the Timken Roller Bearing Axle Company, Canton, O., for the present season are a 1 5-8-inch I-beam forward axle, and their 6 B rear axle. The front axle is designed for cars weighing up to 3,400 pounds, ready for passengers, and embodies the latest developments in axle construction for pleasure cars. The center is a forging in one piece

Timken One-piece Drop-forged Front Axle Complete.

from open-hearth steel of a special grade, the spring saddles being forged integral, while the top flange of the axle is widened to give additional stiffness fore and aft. Timken roller-bearings, located in the top of the steering knuckle carry the load and render steering very easy, this being an important feature on high-powered cars where a heavy engine load is carried forward. The steering arms are put into knuckles with a taper shank of generous size, insuring safety at this critical point. Bosses are provided for making a good mechanical job of the attachment of the speedometer bracket. Only rear steering is provided, as with the latter the wheel centers can be brought much nearer the pivot center.



Rear Wheel Double Brake Assembly.

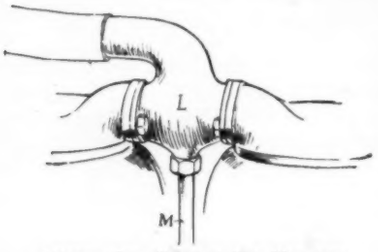
The Timken 6 B rear axle is designed for cars under 40-horsepower and weighing up to 2,800 pounds, ready for passengers, or when equipped with nickel-steel tubing and shafts, it is suitable for 60-horsepower cars up to 3,400 pounds, thus making it

Timken Rear Axle Driving Unit Complete with Brakes.

the companion of the front axle already described. It is made with either single or double brakes on drums integral with the inner flange, separate drums with an air space between, being employed with double brakes. The internal brake is completely housed and easy adjustment is provided on both. The axle tubing is 2 1-2 inches diameter by 1-4 inch wall, and is keyed and riveted into both the brake bracket and the center housing. This is a one-piece casting, carrying all of the bearings for the pinion shaft and differential, entirely independent of the driving shaft. Gear ratios of 2 1-2, 3, and 3 1-2 to 1 are optional, according to the weight and power of the car to which they are to be fitted. In the case of both the front and rear axle, the unit is entirely complete and ready to be placed upon the chassis for which it has been designed, bolting to the springs and connecting being all that is needed.

DOINGS OF BUSY INDIANAPOLIS FACTORIES

FOR many years prominent in flour-milling machine construction, possessed of a magnificent and beautifully situated plant and an inexhaustible fund of industry, the Nordyke & Marmon Company is exceptionally interesting to the student of modern motor car practice. The Marmon product stands in the same light to American practice that the Lanchester has occupied in European; that is to say, a car of exceptionally sound construction yet full of original ideas. There have been some radical changes in the Marmon for 1908, changes which experience showed to be justifiable under the march of conditions, but all of the principles which characterized the design of the first Marmon car still remain, although elevated to a higher plane of development. The new Marmon engine is an especially fine piece of work, and incorporates many features which the close observer would doubtless trace to a searching acquaintanceship with the highest grade of foreign practice. There are some excellent original ideas, however, incorporated in its construction, but these are mostly found in the details and not in any of the functional essentials.

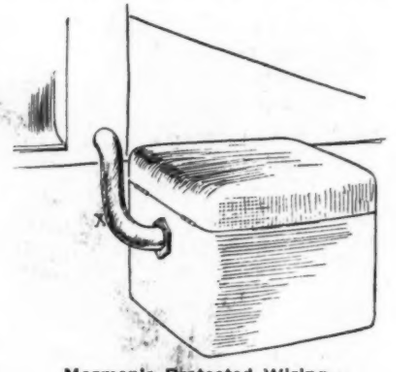


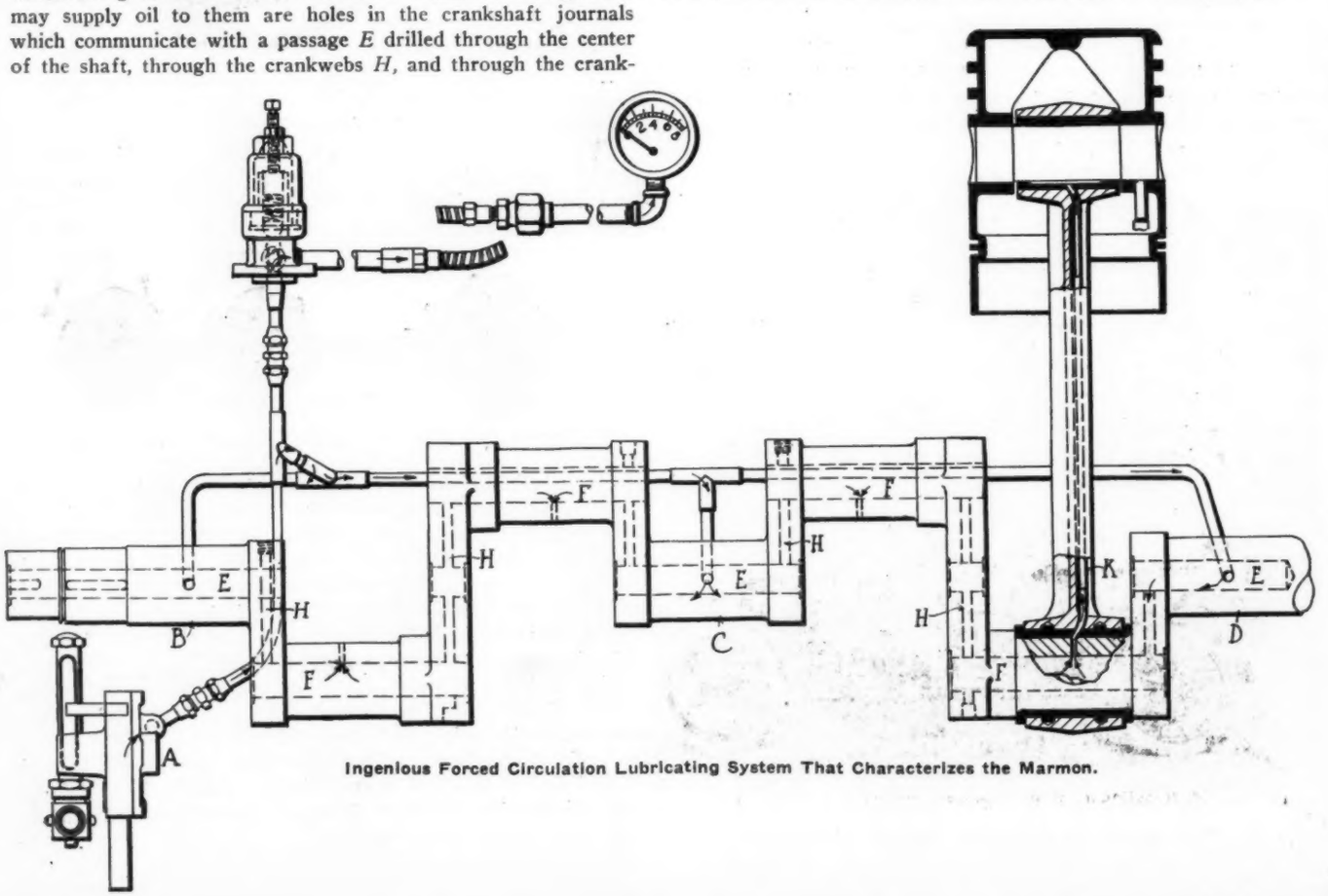
Water Coupling on the Marmon.

A Self-contained Oiling System.

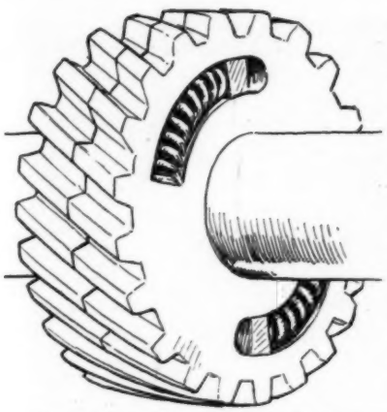
Probably the most interesting feature from a purely mechanical point of view is the system of forced lubrication, and although this is not uncommon abroad, it is used by few in this country. As shown in the diagram, it consists of a gear pump *A* taking oil from the base of the crankchamber forming a reservoir, forcing it thence to the crankshaft bearings *B*, *C* and *D*, which are grooved to receive the flow. Drilled so the grooves may supply oil to them are holes in the crankshaft journals which communicate with a passage *E* drilled through the center of the shaft, through the crankwebs *H*, and through the crankpins. Thus there is a complete oil passage through the crankshaft. The crankpins *H* are drilled to permit the egress of oil and the connecting rod bearings also are suitably grooved to distribute it. From these, however, an aluminum pipe *K* is run to the piston pin bearings, whence it can escape only by passage along the piston pin, thus insuring complete lubrication of this usually indifferently lubricated portion of the engine's anatomy. It is found that with the pump giving a pressure of approximately two pounds an ample flow of oil is kept to all parts, which flow of oil is proportional directly to the speed of the engine, and independent of the amount of oil in the system, provided, of course, there is sufficient to provide for the pump immersion. Another rather pretty construction is the way in which the upper water connection of the cooling system is made.

The Nordyke & Marmon company utilizes a double three-point suspension for the unit upon which is mounted the engine and transmission and for the running gear. The employment of this floating system makes it imperative that flexibility between the engine and the radiator shall be insured, so that a long rubber hose is utilized in place of the usual short section. The waterjacket covers carry opposed flanges between which a T-fitting *L* is located. This T-fitting also carries the union for the connection *M* to the carbureter waterjacket. Another interesting feature of this engine is the way in which the valve tappet lifters carrying the rollers which bear on the cams are located. The rocking lever is bracketed to


Marmon's Protected Wiring.



Ingenious Forced Circulation Lubricating System That Characterizes the Marmon.



Overland Spring Crankshaft Gear.

a circular flange, or cover, which registers in the crankcase. This and its adjacent fellow are held in place by a yoke and a central bolt which secures the two but renders them easily detachable. A feature of the Marmon valve system is the absence of a screw adjustment. The upper end of the valve tappet is drilled to receive a hard steel T-shaped tip, and any adjustment is made by adding or taking away shims below this tip. It may seem at first sight that this system is a little crude, but it certainly makes for simplicity, and one thing is sure, that after an adjustment has been made it certainly will remain fixed.

Novel Air Pump for the Fuel Pressure.

Another very interesting thing, and one which is novel in this country, is the use of a small air pump, cam-driven from the camshaft on the exhaust side of the engine, for maintaining the pressure on the gasoline. This pump has a bore of about 1 inch and a stroke derived from an eccentric cam of about 3-8-inch, with a spring return. The suction valve is mounted on the head of the piston, and the delivery valve, which consists of a small ball, held down to its seats by a spring located in the cylinder cover, which also carries a relief valve. The relief valve, of the ball check pattern, is larger than the pump check valve in order that the cylinder head containing both may be made a one-piece job. In order to secure this end the pump check valve is first dropped in and then its retaining spring got into place by means of coiling it more tightly in order to secure the reduction of diameter necessary to pass into place. Above this then comes the relief valve, which also has a superimposed coil spring adjustable to determine the maximum pressure on the gasoline. Another check valve is floated on the line between the pump and the gasoline tank, but this is done merely for the sake of precaution and to insure a perfectly tight connection at all times. The interesting point about this pump is the lack of noise, for any small air pump is apt to make considerably more sound than warranted.

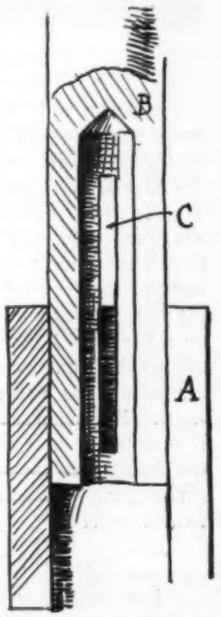
Marmon Double Three-point Suspension.

One of the principal constructional features of the Marmon car is its double three-point suspension. The engine and transmission are mounted upon a subframe pivoted to the main frame triangularly, the base of the triangle being forward and at the apex in the axis of the drive. This entails the inclination of the subframe carrying the engine and transmission rearwards in order to secure that desirable feature, a straight line drive, in conjunction with the equally desirable quality of ample clearance. The system of forced lubrication used entirely obviates trouble from this inclination.

A novel feature is the arrangement of the clutch and striking mechanism. In the first place a multiple-disc clutch with cork inserts is used. In the second place comprehension of the failings of the disc clutch has led to the adoption of an ingenious automatic clutch brake; and, thirdly, the clutch-striking mechanism is all safely ensconced in an extension of the gearbox away from the dust and dirt and always lubricated.

While talking of the National company's product mention was made of the fact that it has found the insertion of radial ball bearings in hard aluminum alloy cases without the use of intermediate cages perfectly satisfactory. In the Marmon machine a wide divergence from this practice is noticeable, for wherever a radial ball bearing is used a cast steel cage is employed to retain it. In the gear-set quite an original system is employed, the shafts with their bearings being supported in cast steel spiders which register in the gearcase, being securely bolted into place. The means of retention of these bearings is most ingenious. The cage is tapped for a 1-4-inch set screw, under the head of which a washer is located. This washer bears segmentally upon the outer race of the bearing, thus retaining it in place against end pressure. A number of these retainers are used about the periphery of the bearing race and the whole is securely locked by a wire threaded through holes in the heads of the set screws.

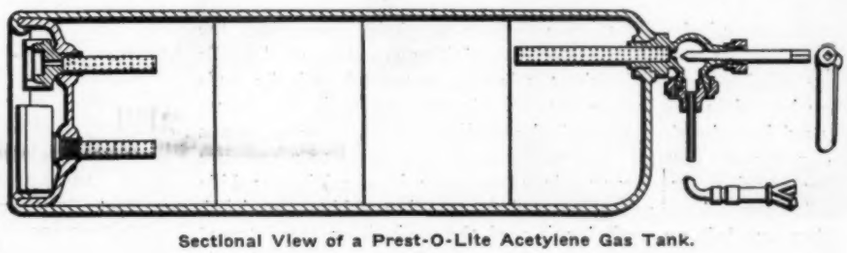
As with any car having this distinctive ingenuity of design, it is difficult to select just the points which are most interesting, exactly in the same way that it is difficult to describe with lucid reading interest a machine that differs in nothing from an accepted past standard. One cannot help, though, being impressed at the Marmon factory with the enormous amount of detail work through which the producers must have fought their way to their present status. There is no crudity found anywhere—the Marmon method is used all through, but perfection of purpose has certainly been reached. Look, for instance, at the way in which the battery leads are taken care of. The sketch shows the copper tube *X* encasing them, carrying them up to safety from weather conditions within the haven of the dash.



Speed Carbureter Jet.

Overland Cars Being Made in Tents.

To leave the Premier and Marmon factories and in a little while come to the Overland factory is to leave a staid eastern city and drop down in a real live western town. They are surely "going some" at the Overland plant. They are literally building machines in large tents grouped about the factory precincts and every available inch of ground space is crammed with men who are bing persuaded to do their utmost to bear their part in the production of the Overland success—for it has been a success, this little machine. Everybody at the Overland plant has the most irregular habits as regards eating and sleeping and quite regular ones as to work all the rest of the time; but through it all they carry a look of satisfaction that is unmistakable. On the dusty, bumpy road that runs past the factory doors test cars tear up and down just as hard as the men driving can send them. From a tent in the rear comes a continuous high-frequency rattle that tells of many engines on the test stands. In the factory proper no one has time to talk, for each and every one of them is a slave to success. The great rivalry of the plant is for the assemblers to beat the body builders, and it's a dead-heat race most of the time, for every available ounce of nerve pressure is being utilized by the entire working force to achieve that end.



Sectional View of a Prest-O-Lite Acetylene Gas Tank.

Overland Cars Being Built and Assembled Under Canvas.

It's a neat little machine, too—it looks well, behaves well, has snap, power, speed and is exceptionally quiet. The writer has rarely ridden in a quieter low-powered car, and this feature of the Overland is the more remarkable since the change speed gear is of the planetary order located at the rear axle. There are some things in the construction which are hardly conventional, but some are exceptionally effective. One is the arrangement of the forward engine gears. These are of the single helical type, and as such, except that it is rare practice to find them on a low-priced car, not remarkable. There is, however, a point of novelty that is distinctly worth while. The gear on the crankshaft has an extension to it which is free to turn on the shaft. By means of small springs tendency to relative motion is maintained between the gear proper and the extension, with the result that backlash in the gears working with the divided engine gear is entirely eliminated, irrespective of the amount of wear involved.

Presto-O-Lite Factory a Hustling Plant.

It is curious how the creation of an industry brings others in its wake. Few people have any idea of the magnitude of the American automobile industry *per se*, and still fewer of the extraordinary versatility of allied trades. For example, every autoist is conversant with the Prest-O-Lite tank and is thankful for the boon its invention conferred upon motors and mankind, but not a tithe of the interested public has any idea of the magnitude of the organization necessary to handle the manufacture and recharging of such an itinerant accessory. Prest-O-Lite tanks are, of course, charged at various central local stations all over the country, but the bulk of the manufacturing is done at the Indianapolis plant, although the drawn shells are from farther west.

The shell is filled with a porous absorbent body, partially saturated with pure acetone, a chemical closely allied to ether, which has the property of absorbing acetylene gas to an extraordinary degree, which absorption properties are increased by the gas being introduced to the acetone at high pressure. During the process of absorption the acetone almost doubles its volume and its weight increases.

The practical adaptation of these principles constitutes the Prest-O-Lite manufacturing process. The seamless steel shells are filled with an absorbent asbestos compound and the ends are brazed in. A known quantity of pure acetone is then introduced into the shell through the medium of the valve by means of a vacuum system. The tanks are then coupled to a pressure line carrying pure dry acetylene gas made from calcium carbide and water in huge generators and thoroughly scrubbed and dried. They are left on until heating of the tank from the internal absorption warns the operator that the first stage of filling is complete. The tanks are then permitted to cool, after which gas is again turned on, when, as a rule, the filling process completes itself without further attention.

To go closely into the process involved from a manufacturing standpoint would be exceedingly technical and, although interesting, somewhat out of place. To the lay mind by far the most engrossing of the mysteries of the Prest-O-Lite tank is the way in which its travels are tabulated. In the center of an annular table sits a young woman, and about her, placed radially, are card trays carrying ordinary card file size cards. These cards are serially and consecutively numbered and each card represents a tank—different sizes of tanks are accounted for by different colored cards. One side of each card is devoted to shipping instructions, with dates of shipment; the other to origin of consignment and dates, so that by taking a card out and glancing at either side consecutively one can tell exactly the tale of the journeying of that tank with reference to the home office. It's a marvel the way those tanks get around, almost like a fairy tale. A tank will start out from Indianapolis for New York and finish up in San Francisco months and months afterwards. The Prest-O-Lite company has its troubles, too. People manage to get the tanks full of water once in a while, although how it is done is a mystery to the firm. Then, notwithstanding instructions, they will insist on putting tanks on upside down, etc.

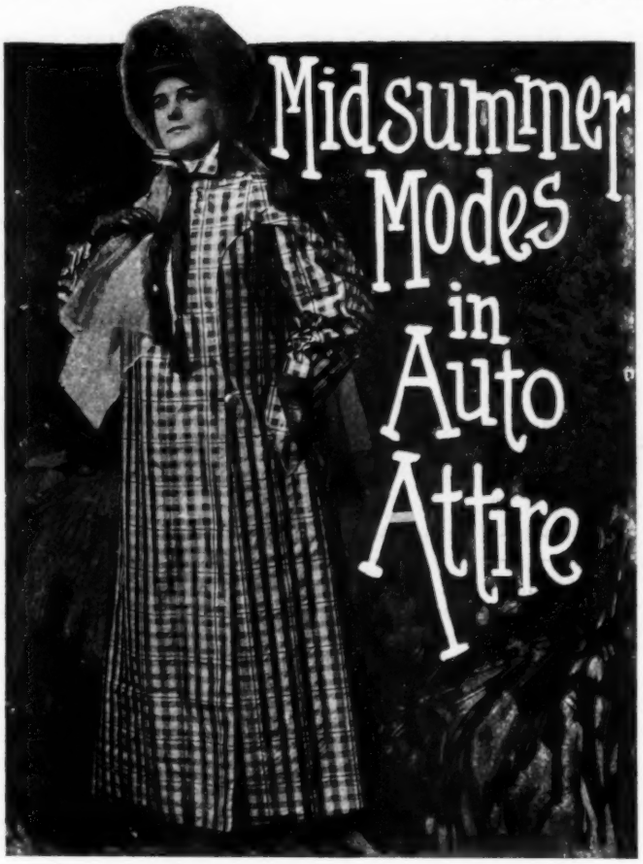
Air-cooled Motors, Carbureters and High-wheelers.

A concern that has been steadily working along in the automobile accessory business for a long time now is the Speed Changing Pulley Company. Apart from the manufacture of double-opposed and four-cylinder air and water-cooled engines upon entirely standard lines, it also is established in the carbureter branch of the industry. The carbureter this firm makes is now known as the Speed, but up to recently was termed the Universal; it has been on the market some time. To the mind of the writer, the jet device whereby the gasoline flow is regulated is one of the cleverest extant. It consists of a hollow stem having two very narrow saw cuts made in it. These cuts are meshed more or less as the gasoline supply is to be increased or cut down, as the case may be. This is particularly effective as an adjustment, as with it a change in the gasoline feed is quite gradual in its bearing upon the behavior of the carbureter. This firm, too, is experimenting at present with a high wheel buggy-type machine,

KEEP THE STEERING WHEELS PARALLEL.

Sometimes the front tire will wear abnormally, and the blame may be put upon the tire manufacturer, while it is really due to the wheels running out of parallel, and consequently there is rubbing on the ground as well as rolling, says *The Autocar*. With a car of good manufacture this may be thought an impossibility, but this is not the case if the car has been badly handled in daily use. One frequently sees a garage attendant move a car from one place to another, wrenching the front wheels round by means of the steering wheel with the car stationary. As the steeing gear enables one to put a great deal of power into turning the front wheels, the stress on the steering arms is very great, and consequently they are liable to be bent, and, in fact, do become bent out of shape, with much handling in this manner. Attention has also been called to the ill-effects from straining the gear with the hand wheel when stationary.

Midsummer Modes in Auto Attire



Novel-shaped Coat of Clan Plaid Taffeta.

THE woman who fancies that almost any long coat, small hat and enveloping veil will answer for an automobile excursion makes a grievous mistake. Makeshift garb for such a purpose is quite liable to cause her to appear preposterously out of date. Moreover, out of regard for her hosts she should endeavor to be as smartly clad as is possible.

Midsummer automobiling is now so attractive a character that many women of unlimited bank account do not resist the temptation to purchase a number of outfits of distinctly different types. Some of these costumes are of a somber tone, others are almost frivolous looking, but all of them are decidedly smart.

In selecting an outfit for a tour of several weeks' duration, such as many family parties take at this season of the year, it should be remembered that luggage space must be economized to the utmost. Consequently it is best to limit the number of long coats to one. This should be a rubberized rainproof garment of invisibly striped or plaided mohair, of some color that will not readily show the dust. For this purpose a medium shade of gray is excellent or the khaki brown that is now so fashionable and accords so well with a natural hued pongee traveling frock. These come in ulster shapes that are smooth-fitting across the shoulders, where the fulness is taken up with tailored darts. There is no unnecessary bulk about the hips, but the lower portion of the skirt slopes sufficiently to afford comfort when the wearer is seated and to prevent the garment from wrinkling at the knees. These coats have double-breasted fronts, fastening with moderately sized buttons, covered with satin matching the turn-back cuffs and turn-over collar. With such a coat may be worn a mohair-crowned and kid-visored cap, covered with a chiffon veil of a matching tint unless the fair automobilist possesses the moral courage to don a red veil, which better than one of any other color will protect her complexion from the sun.

For a short trip, during which there is a slight chance of being exposed to rough weather, there are coats of pearl gray, champagne or pure white crêpe de chine and twilled silk, which are exceedingly attractive. They are developed somewhat on *directoire* lines, in that they outline the figure without actually defining it and are short-waisted at the back. In front they close to below the knees with a single row of large fabric-covered buttons, so that when the wearer is seated in the car her frock is quite as adequately protected as if worn beneath a utility ulster. Of the same class are the stunning garments which are also used for carriage and country evening coats. These are of champagne-colored rough pongee, long, semi-fitting, double-breasted, closing with two rows of chased silver buttons resembling tiny inverted bowls. Their wide, turn-over collars and cuffs are broadly banded or piped with black satin and faced with corded silk of the genuine Hungarian cerise, which most nearly resembles that of the uncooked beet. The entire coat is lined with the same deep, vivid shade and there is a touch of it on the long black satin scarf which draws the collar together beneath the chin. With a garment of this character the hat must needs be of a distinctive character, like the pongee and Panama combinations or the natty little turbans of colored fine straw with crowns, bands or scarfs brightly striped, that are now so deservedly popular.

Another type of autoing coat which is popular for short midsummer trips is of checked and striped linen, which is neither dust or rainproof, but exceedingly light and cool, and possesses the merit of laundering in a satisfactory manner. These wraps are often the third piece of a linen costume comprising a jumper suit, a princess or a skirt and blouse of tobacco brown, dark blue or tan linen trimmed with contrasting shade or color. To accompany them are linen caps of the same hue, but rather more becoming headgear for both young and middle-aged women are the linen turban and toque shapes carrying short wings and quills.

There are certain accessories which every woman should take when starting on a trip of more than a day's duration. One of these is the rubberized and flannel-lined tweed or serge shoulder cape that is deep enough to reach to her hips and has a collar wide enough to protect her neck. Some of these capes have hoods which may be drawn over a moderately sized hat in case of a sudden rainstorm, but these are hardly so comfortable or so readily adjusted as are the separate hoods of silk-lined rubber, generously punctured with ventilation eyelets. Another accessory which should never be omitted is the hip-length sweater, with its high collar and long sleeves, which comes in several colors and is of the finest zephyr. Such garments have prevented many a thinly clad automobilist from contracting a severe cold. As they cling closely to the figure, even the woman who considers herself just a bit too plump for the prevailing long-lined classic effects need not fear that they will add

All Ready to Take the Wheel.

Auto Masks That Are Becoming.

too perceptibly to her apparent bulk.

Now that the sleeves of all daytime gowns are made so much longer and actually protect the forearms, long-wristed gloves, which formerly kept the draft from whisking up the wide wrist openings of her touring coat, are no longer necessary. The gloves designed for midsummer are of spun silk or lisle, with double finger tips and palms lined with kid. These are the most comfortable affairs imaginable and infinitely prettier on the hands than were those of heavy pelt that were so generally worn last year. Few, save the women who actually take the wheel, use gauntlets, and these are made similarly to those worn by men, save that the cuffs are sometimes stitched. If silk and lisle gloves are not comfortable, the next best choice is wash chamois. These are necessarily very loose fitting and therefore not so smart looking as are those of woven materials.

Women who constantly use the car find that in the long run it is better to wear high-topped shoes, as the ankles are apt to get chilled during a long ride. Moreover, such footgear looks more modest when the wearer must alight from a car within full view of the occupants of a hotel or clubhouse veranda. It is always best to have the shoes match the shade of the coat, and if this garment be of gray or tan the desired hue may be found in ooze calf, which is exceedingly flexible and therefore comfortable.

Although every automobile coat is supposed to have capacious pockets over the hips or at the side seams, a hand bag of moderate proportions is an additional convenience. The pigskin novelties of this description are perfectly equipped with all the smallest toilet conveniences arranged so compactly that in the remaining space may be put a China silk dressing jacket, an extra handkerchief or two, and a pair of stockings and slippers, not forgetting the dainty embroidery or lace-trimmed "nightie" of soft cotton that may be folded into small compass. It is the presence or lack of these numerous small accessories that make for comfort or the reverse when on tour, and only the woman who knows what it is to cover a hundred miles a day over an extremely dusty road can realize what it means to arrive at a hotel in the last extremity of dustiness, only to find that the process of rejunevation must be accomplished with the meager facilities afforded by the public hostelry. Despite the apparently adequate protection that the proper garments afford, the dust and dirt are all-pervading.

Two-toned Fashionable Costume.

Smart Clan Plaid Taffeta Coat.—Every woman who has the slightest claim to Scotch ancestry selects the plaid of her particular clan when buying a taffeta automobile coat of that type. Because the patterns are of themselves effective, the garments are developed on the simplest of lines. Some of them have absolutely plain fronts, which fasten at the left side just below the waist line and again near the shoulder by lapping over the top of the draped sleeve, which gives the sloping shoulder effect to the garment. The vogue of satin trimmings shows in the tassel-ended necktie, and the diamond-shaped epaulets and the cuff insets.

Ready to Take the Wheel.—Women who are expert drivers of automobiles contrive to get themselves up most effectively for their diversion, although it is necessary to wear a coat sufficiently roomy about the shoulders and arms to allow the body perfect freedom. As a veil is liable to blow across the face and impede the view, it is for the nonce discarded in favor of a semi-hood, which protects the hair and ears from dust. This is of the same material as the rubberized white coat and is attached to the under side of the hat brim. The silk covered rough straw hat should be so close fitting that the wind will not disturb it. It is trimmed with dark wings and fancy braid to match the kid gauntlets.

Masks.—To protect the complexion from freckles, sunburn and tan and at the same time to obtain an uninterrupted view of the scenery is a problem only to be solved by the motoring mask. This is built upon a slender wire frame, shaped to fit over the nose and beneath the chin, and is composed of isinglass veiled with a ten-inch ruffle of white point lace. Such masks may be adjusted to hats of any shape and are put on before the veil or hood is arranged. As they leave only the eyes exposed they are quite as becoming as the face veils worn by the women of the Far East.

Two-toned Costumes.—Among the most attractive of the widely checked rubberized taffeta motoring coats are the ulsters in two tones of blue, brown or green, having double-breasted fronts, closing with medium-sized buttons, patch pockets similarly decorated and cuffs and collar of the darkest hue. The two-tone scheme of coloring is carried out in the hat and veil, the straw turban being of the darker shade and trimmed with a soft silk scarf of matching hue, and the veil of the pale tinted chiffon embroidered with dark polka dots and finished with a scalloped edge.

THROUGH BOSTON-NORTH SHORE ROUTE OPEN.

Boston, July 13.—An important concession to automobilists has been made by the Metropolitan Park Commission in the opening to motor vehicles of the Revere Beach driveway on every day during the summer except the afternoons and evenings of Saturdays, Sundays and holidays. This driveway is a short stretch of road connecting the Revere Beach parkway, the main route from Boston to the North Shore and beyond, with the extension of the parkway and the State road leading into Lynn. Heretofore automobilists were permitted to use the driveway in the summer time only after 11 o'clock at night and before 11 o'clock in the morning. With the opening of the driveway at all times except Saturday, Sunday and holiday afternoons and evenings, a complete park route from Boston to the North Shore is available. Previously motor vehicles have had to use a narrow town street crowded with street cars and beach visitors in the rear of the driveway, and it was far from being a pleasant route over which to drive a car at any time of the day.

Aeronauts Enjoy Summer's Sunny Skies

The French War Balloon "Republique" Ready for Flight at Moisson.

PARIS, July 9.—*Republique*, the dirigible automobile balloon of which France is so justly proud, has been launched. At 3 o'clock of a calm June morning there was bustle and activity around the big Lebaudy shed on the plains of Moisson, 30 miles to the northwest of Paris. At 4 A. M. the successor of the unfortunate *Patrie* majestically came forth into the open air and at five o'clock George Juchmes mounted on board and gave the order for the big Panhard engine to be cranked. Three minutes later the *Republique* was heading off to the west on its first trip in its natural element.

It was a mere formal preliminary flight that was attempted, the pilot and his crew of three being satisfied after the airship had evolved in all directions for a period of 34 minutes. For the next six days trips will be made every morning, weather conditions being favorable, the military crew will be trained, and at the end of that time the army commission will be invited to attend the official trial trips, during one of which the automobile balloon will be called upon to travel at full speed for two hours. A brief stay at Chalons-Meudon will follow, pending the construction of the special dock at the eastern frontier town to which the fighting unit will be attached. Some authorities declare that Toul will receive the *Republique;* there are others of the opinion that the registered port will be Belfort. It is certain, in any case, that the Germans will have the war balloon as a near neighbor.

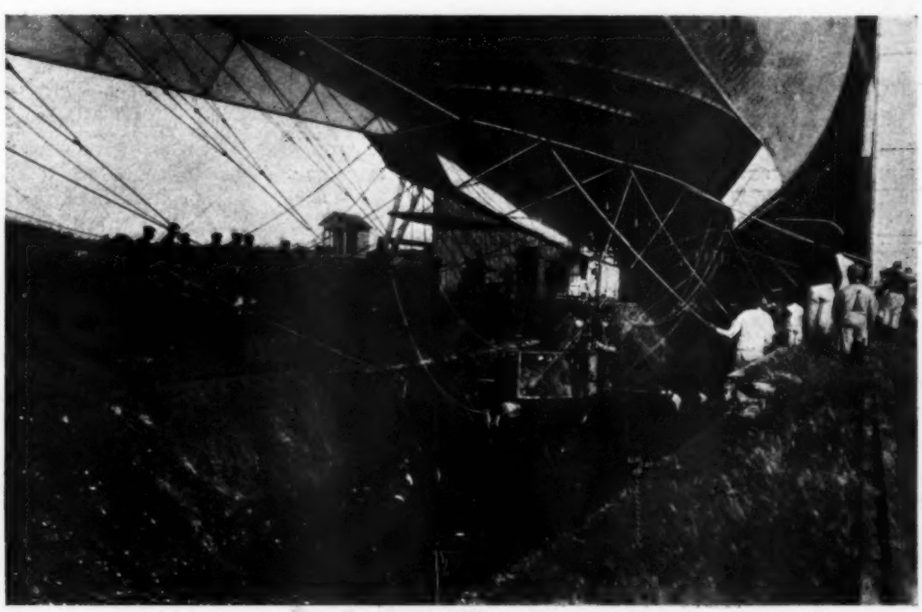
So far as the balloon portion is concerned, George Juchmes has built the *Republique* on practically the same lines as the military dirigible *Patrie* which escaped and was never found. Overall length is 200 feet; greatest diameter is 34 feet; total cubic measurements are 130,000 feet. When filled wtih pure hydrogen gas, the lifting capacity of the balloon is 2,513 pounds. Maximum speed is 31 miles an hour, and the time the balloon can remain aloft at a normal speed without renewal of its gasoline supply is eleven hours.

The power plant of the *Republique* is a 70-horsepower four-cylinder Panhard motor carried in the center of the cage and operating a couple of two-bladed propellers at each side of the airship. A clutch is interposed between the motor and the propeller shaft and a gear-box is provided. The motor has high tension magneto ignition with storage batteries as a stand-by, the gears this time being completely enclosed. As will be remembered it was primarily owing to a mechanic's jacket engaging in the open gears and stripping them that the *Patrie* was lost. The cooling arrangements are identical with those of Panhard touring cars, the familiar type of radiator being carried on the port side of the cage, just behind the propeller.

Extra precautions have had to be taken with the exhaust, for any carelessness in this respect might lead to the entire destruction of the balloon. The manifold is carried out on the port side right opposite the propeller, and is led into a triple muffler, each one having a specially designed radiating surface. The discharge into the air takes place fully astern and under the cage. All gasoline is carried in a large tank with pointed ends suspended to the underside of the cage, the liquid naturally being under pressure. Should any leak take place the fuel would be carried clear away from the cage, thus reducing fire risks to the minimum.

The internal compensating balloonet, the object of which is to overcome the inequalities caused through distention or loss of gas, is normally filled with a pump driven off the motor. As a provision against any possible breakdown of the machinery it can, however, be operated by means of a hand wheel.

An improved feature of the *Republique* is the use of lateral wings by means of which it is possible to raise and lower the balloon in a very large degree without the loss of ballast. An example of this was given on the first trial trip, the airship leaving ground, evolving for half an hour at a height of over 100 yards and coming back to its shed without throwing out an ounce of sand, or having its gas valves disturbed.



"Republique" Returning to Its Shed After Successful Flight.

As soon as the *Republique* has gone through its official tests and been handed over to the military authorities George Juchmes, its designer, will busy himself with the improvement of the *Lebaudy*, one of his earliest dirigibles, and later will commence the construction of the *Liberté*, sister ship of the *Republique*.

The material employed in the construction of the gas bag of the *Republique* is rubbered cotton supplied by the Continental Caoutchouc Company from their German factory. The various sections are fastened together by a sewing machine, the seams being covered by bands of rubber cloth. The interior ballonnet is constructed in the same way, and is provided with four automatic air valves releasing the air when a certain pressure is attained so that the regulation of the extremely important essential of the airship is taken care of without the operator's attention.

DELAGRANGE MAKES RECORD WHICH FARMAN ECLIPSES

MILAN, July 9.—Leon Delagrange still holds the world's flying record, his latest performance having carried him far beyond any of his rivals having made public flights in Europe. At seven o'clock of the evening of June 22, in the presence of a large number of spectators and under the control of an official delegation, the Parisian sculptor started up his Voisin flying-machine, rose into the air without any hesitation, and remained aloft 16 minutes 30 seconds, thus beating his own record of 15 minutes 20 seconds made at Rome.

In connection with the flight it is worth noticing that the flying machine is in absolutely the same condition as when it left the Voisin Brothers' shops. The motor is the same 50-horsepower eight-cylinder Antoinette, unchanged except for a larger capacity water tank. This record performance of Delagrange bears out the declarations of Levavasseur, the builder of the Antoinette engine, that the aeroplanes could remain aloft indefinitely in a calm weather, the length of the flights being entirely limited by the ability of the pilots. When, a few months ago, a three-minute flight was a remarkable performance, Levavasseur maintained that the only obstacle to a flight of as many hours lay in the pilots themselves. "It is not because of lack of water or the using up of the gasoline supply that Farman and Delagrange cannot make longer flights, but entirely because they are not sufficiently trained to remain aloft longer. Flying is an entirely new experience, and at the end of a few minutes the men become afraid."

Levavasseur's theory has been proven correct, for Farman has progressed from six yards to as many miles with the original type of machine and Delagrange has lengthened his flights from one minute to 16 merely by personal training. It is absolutely certain that the prize for a flight of 30 minutes will be captured by either Farman or Delagrange before the summer is far advanced.

It is estimated that the distance covered by Delagrange in his record spin through the air was eleven miles. This, however, is only approximate and is on the supposition that the machine was traveling at the rate of 50 kilometers an hour. As can be readily understood it is a somewhat difficult matter to accurately register the distance covered by a flying machine, especially when the course is a circular one, as was the case with Delagrange, it being out of the question to follow it.

It had been hoped that a flying match would be disputed at Milan between Delagrange and Farman. It has been impossible, however, to arrange conditions and after a couple of days here Farman has left for Paris. Delagrange remains until Wednesday, when he will leave for Turin, in which town he has engaged to make public performances.

According to one authority the public performances of Delagrange in Italy will have netted him a profit of not less than $60,000. In France practically nothing had been gained, for Delagrange just missed the few big prizes offered and never obtained a cent from public demonstrations. It is also declared by the same authority that Delagrange has under consideration a trip to the United States for demonstration purposes, believing that if a tour were organized in the Eastern States it would be a complete financial success.

According to cable advices, Henry Farman has eclipsed Leon Delagrange's record of remaining aloft of 16 minutes and 30 seconds, made June 22, at Milan, Italy. At Paris, July 6, Farman succeeded in remaining with his aeroplane in the air for 20 minutes and 20 seconds, covering a distance of 18 kilometers, thereby winning the prize of $2,000 offered by M. Armengard.

M. Bleriot made an attempt the same day to win the same prize with his monoplane, but succeeded in remaining in the air only 10 minutes and 23 seconds.

FARMAN TO MAKE FLIGHTS IN AMERICA?

Announcement was made in New York papers last Saturday that Henry Farman, the noted French aviator, who has been conducting experiments in France, had signed a contract with a syndicate headed by Samuel Bowman, a real estate operator in St. Louis, to give a series of fifteen exhibitions in this country this summer for $24,600, or approximately $1,600 for each flight that he engages to undertake.

The shows are to be given in enclosures. An admission fee is to be charged, although the press agent avers that the syndicate, which has guaranteed the money to Farman, is entirely altruistic and is "in it" for science and not for profit. The members of the syndicate, however, hail from St. Louis, Mo., that State in which, it is said, everything has to be made manifest, and someone will have to be "shown."

That there is "money in flying shows" is indicated by the fact that a little dissension is apparent already between the promoters of them. The St. Louis syndicate had hoped to sign that other noted European flyer, Delagrange, and to have contests between him and Farman. The first exhibition is to be held at Brighton Beach during the present month, though the French aviator has been having trouble in shipping his apparatus to this country.

BOSTON AERONAUTS TO BUY BALLOON.

BOSTON, July 13.—The New England Aero Club is no longer to be a balloonless organization, as the members, at a meeting, have voted to purchase a balloon. The sum of $615 has been subscribed toward the purchase and it is expected that the balance will soon be in hand. The committee is considering the purchase of the balloon "Boston." It will be located for the present at North Adams or Pittsfield, but later on it is hoped to have a balloon park at Lowell, Worcester or Fitchburg. The club voted to subscribe to the agreement of the Aero Club of America concerning the requirements of a pilot. So far the only qualified pilot of the New England club is Charles J. Glidden, who has made ten ascensions in this country and abroad. Other members who have made ascensions are Professor A. Lawrence Rotch and H. Helm Clayton.

At the meeting Professor Rotch, the president, showed a set of instruments he had devised for finding latitude and longitude while in a balloon. The instruments include a sextant corrected for the horizon and a self-recording barometer giving the height. Mr. Glidden exhibited his ballooning outfit, which weighs 22 pounds, all packed in a case, thus making it extremely convenient to carry around as baggage when traveling.

BAD TURNS MAKE ARROWHEAD TIMES SLOW

NEW YORK, July 13.—As the venue for a hill-climbing course, Depot Lane, which is a twisting thoroughfare connecting the uplands of Washington Heights with the site of Fort Washington on the river, and incidentally with a railroad depot, from which it derives its title, proved not to be all that could be desired by any means. It is only three furlongs, or at least that is all the hill that it can boast, and quick times might well have been expected over such a short distance had not the very bad kink in its upper half, for which the Lane has always been noted, compelled the drivers to practically come to a stop, while the remainder of the course was not sufficient to permit of gathering speed a second time. The event was the first annual hillclimb of the Riverside Motor Club and furnished considerable entertainment for a large crowd in spite of the comparatively slow times.

Bourgue in Knox Setting Record Mark for the Hill.

The Knox cars gathered in several of the principal honors of the day, Dennison, in the free-for-all class, covering the course in :23 2-5—the day's record for time. The next best time was also made by a Knox, driven by W. Bourgue, in :23 4-5. He also won in three other classes, with a shade more of time against him, but giving creditable performances nevertheless.

Frank E. Dunnell's Ford won two other events, while single victories went respectively to H. E. Wagner's Babcock, Tommy Forbes' Overland, and M. Klar's Kelton, all in the taxicab class.

The taxicab contest was the closest event of the day, putting the official stop watch to a severe test, and Kelton got the decision on a fifth of a second's margin to the good, furnishing momentary excitement for the assemblage along the course.

Swan with his Stearns who finished second in the class for cars listed at $4,000 and over, protested the Knox, winner, on the ground that the latter car was catalogued lower than $4,000 and in consequence not eligible to compete in the event in the class with the Stearns. This protest was noted and will be acted upon later, no announcement being made until then.

The American, with Stewart Elliott at the wheel, nearly mixed matters in one event, when the steering gear jammed just as he was about to take the turn. The car headed for a stone fence, but fortunately struck a point where the fence opened into a field, where it was brought under control. Aside from this there were no accidents owing to the extreme caution exercised by the drivers in taking the curve, which is without a doubt by far the worst that any of the most seasoned drivers in hill-climbing contests have had to snake a car around in all their experience, and that is saying a great deal.

Below are the results of the various events.

GASOLINE CARS, $850 OR LESS.

1.	Ford	15	Frank Dunnell	:32 2-5
2.	Maxwell	12-14	W. B. Ladd	1:01 2-5
3.	Gyroscope	18	A. Comancho	1:14 2-5

ELECTRIC VEHICLES, ANY PRICE.

1.	Babcock Electric	—	H. E. Wagner	:41 2-5
2.	Babcock Electric	—	Dr. A. C. McIntosh	:44

GASOLINE CARS, $851 TO $1,250.

1.	Ford	15	Frank Dunnell	:30 2-5
2.	Overland	22	Tommy Forbes	:38 3-5

GASOLINE CARS, $1,251 TO $2,000.

1.	Overland	22	Tommy Forbes	:45
2.	P. & S. Skimabout	30	G. T. Manville	:49 4-5

GASOLINE CARS, $2,001 TO $3,000.

1.	Knox	30-36	William Bourgue	:24 4-5
2.	P. & S. Six-Sixty	60	F. L. Lescault	:26 3-5
3.	Ford	40	Frank Dunnell	:30 3-5

GASOLINE CARS, $3,001 TO $4,000.

1.	Knox	30-36	William Bourgue	:24 4-5
2.	American	50	Stewart Elliott	:25

GASOLINE CARS, $4,000 AND OVER.

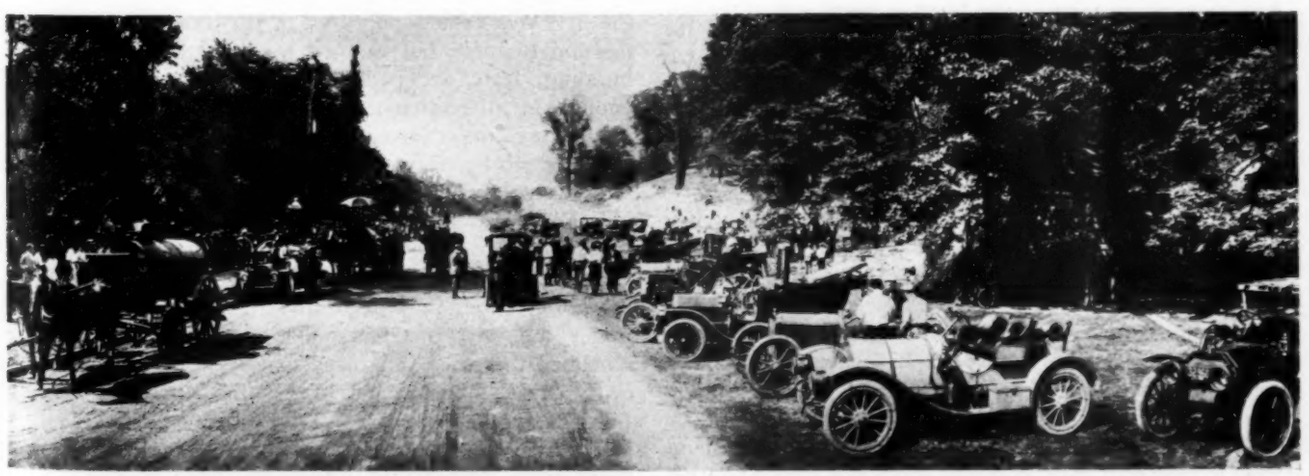
1.	Knox	30-36	William Bourgue	:24 3-5
2.	Stearns	30	K. Swan	:25 2-5
3.	Lozier	45	Harry Michener	:25 3-5
4.	American	50	Stewart Elliott	:25 3-5

FREE-FOR-ALL, ALL MAKES AND POWER.

1.	Knox	48	A. Dennison	:23 2-5
2.	Knox	30-36	William Bourgue	:23 3-5
3.	American	50	Stewart Elliott	:25 4-5

TAXICABS TO CARRY FOUR PERSONS.

1.	Kelton	30	M. Klar	:35 3-5
2.	Knox	25-30	A. Dennison	:35 4-5
3.	Garford	30	S. H. Elliott	:36 2-5
4.	Bianchi	22	Felix Prossem	:39 4-5
5.	Franklin	18	Charles F. Fox	:41 4-5



At the Foot of Arrowhead Hill When the Cars Were Lined Up Awaiting Their Turns at the Trials.

THE AUTOMOBILE

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REMOVAL NOTICE.

The Class Journal Company, publishers of "The Automobile," "The Automobile Blue Book," "The Automobile Trade Directory," etc., has removed its publication office to the Thirty-ninth street building, Nos. 231-241 West Thirty-ninth street, New York City, from the Flatiron building, where the offices have been located for the past five years.

The rapid increase in the company's general business has made it necessary to enlarge its facilities, and the entire sixth floor of the new building is devoted to its present requirements.

A cordial invitation to our patrons is extended to visit our new offices, where every courtesy will be extended.

New York patrons are requested to make special note of the new telephone number, 2046 Bryant. It is not listed correctly in the New York telephone directory.

THE CLASS JOURNAL COMPANY,
231-241 West Thirty-ninth street,
New York.

LAUNCHING THE GOOD ROADS CAMPAIGN.

Being the first concerted movement of its kind, much was naturally expected of the initial Legislative and Good Roads Convention of the American Automobile Association which held the boards at Buffalo last week, but not even the most optimistic advocates of uniform and reasonable legislation and improved highways would have cared to commit himself to the extent of predicting more than a fraction of the actual results that have been achieved. Some idea of the widespread interest manifested in the event may be gained when it is stated that not only were the State engineers and other highway authorities from many States of the Union present, but the Federal Government was also represented, thus revealing in an unmistakable manner that the nation as a whole is actually awakening to the importance of improving its vast network of highways.

Had it done nothing more than to call general attention to the fact that legislation in this country on the subject of the automobile is utterly without rhyme or reason, where the majority of the States is concerned, and that a man may constitute himself a criminal merely by attempting to pass from one to another in a power-driven vehicle, the legislative branch of the convention would have justified its existence. But it did a great deal more, and it is quite safe to say that the result of the efforts of the various authorities who gathered to discuss the legal aspect of automobiling will form an entering wedge, the effect of which will be plainly apparent within the next year or two. Contradictory and unreasonable legislation, passed in a spirit of medievalism, is as much out of place in the twentieth century as are the miles and miles of meandering and holey cowpaths, which, through lack of some equally brief and comprehensive term, we are compelled to call roads. Both "retard the progress and development of the automobile and greatly lessen its usefulness," to quote Chairman Terry, and, it may be added, one is as necessary as the other.

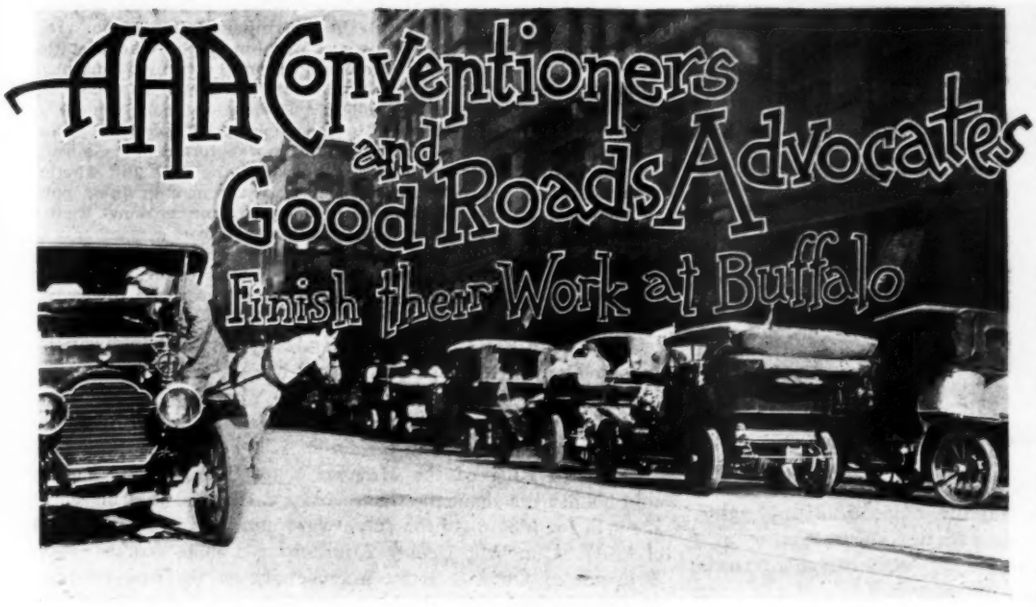
Apart entirely from the vast amount of good work that was directly accomplished in the limited time available, on both the subjects for which the convention assembled, its indirect influence in awakening public opinion to the true state of affairs is incalculable. Once the man in the street comes to a realization of the fact that, though he may never be the possessor of one, the development of the automobile and its most important mission, the improvement of the highway, affect him, opposition will melt away as if by magic and results, once so difficult of attainment, will follow naturally from the inertia of the vast force thus set in motion.

* * *

FRENCH RACING PLANS MISCARRY.

It is now in order for the French automobile industry, which controls racing in that country, to institute a new annual classic—one in which French chances will not be 40 or 50 to 1, but 100 to 1. France must be a winner every time. The Grand Prix gave promise of this and the first year results appeared to justify the killing of the Gordon Bennett, but in 1907 a mere tyro at automobile building, Italy, scooped all the honors. That was bad enough in all conscience, but this year, *Helas! C'est a pleurer a chaudes larmes,* the Teutons, the very last people on earth by whom the Frenchman cares to be beaten, took everything there was to be had, and as handily as you please. It is indeed a bitter pill for French pride to swallow that none of her crack drivers of many years' experience was able to cross the line better than fourth.

Galling enough to be beaten by one's dearest enemy under any circumstances, but to be so utterly overwhelmed that there is scarcely a straw of consolation to be grasped anywhere, certainly *"it is to weep the hot tears."* Nothing remains for France but the glory of bygone victories and the necessity for framing up something new. Exactly what form this may take, it is hard to predict, but certainly an excuse exists for changing.



Delegates Arriving in Front of Headquarters at the Hotel Iroquois.

BUFFALO, July 9.—The second day of the Good Roads and Legislative convention of the American Automobile Association was intensely interesting and marked an epoch in the general progress of automobiling. Owing to the necessitated absence of Chairman Robert P. Hooper, of the A. A. A. Good Roads Board, ex-Governor N. J. Bachelder, Master of the National Grange, took the chair, and carried out to the letter the program prepared by the general committee in charge.

The committee on resolutions was given a hearing and the resolutions presented by Charles T. Terry, chairman, were unanimously adopted. In brief they pledge the National Grange, the American Roadmakers' Association, and the American Automobile Association to work for the election of legislators, national and State, who will support the uniform state motor vehicle law proposed by the A. A. A. and the enactment of the Federal automobile registration law. Governor Bachelder in the opening address raised the points of difference between automobilists and farmers, giving his opinion that obstructive legislation operating against automobile owners has been justifiable to an extent, owing to the coming of the "speed maniac" and his life-endangering use of the highways where the horse is still the prime motive power.

Referring to the alleged road destroying effects of the automobile, he suggested that the facts relating to the effects of automobile traffic on improved roads should be ascertained before raising needless alarm over the alleged destructive tendencies of the inflated rubber tire.

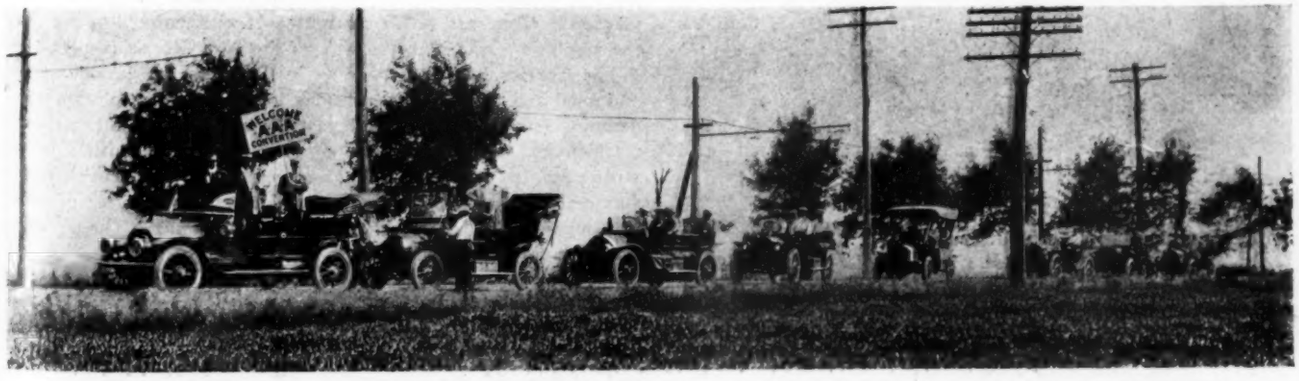
Governor Bachelder then proved by statistics, figures and argument the contention that the motor-driven vehicles would prove an economical transport for the farmer.

In advocating Federal appropriations, the Governor called attention to an unfair division of tax expenditures—the farmers, one of the country's most productive tax-paying classes, not receiving their just share in the expenditure. He said:

"The farmers are determined that this state of affairs shall not continue. They have made up their minds that Congress must devote a share of the annual appropriations to the construction and maintenance of our roads. Some of us believe that the creation of a National Highway Commission, with power to organize an efficient corps of trained road engineers, who, in cooperation with the State and local highway authorities, would supervise the disbursement of the Federal grants, would be a highly satisfactory solution of the important good roads problem."

In conclusion he said that Federal aid in road improvement will not lessen the interest of states, counties, and townships in this matter. To the contrary, it will have a stimulative effect.

"New York's Highway Code" was the subject discussed by Senator Jotham P. Allds, of New York. He outlined the system of road maintenance, telling of the subdivision of the great work. The Highway Commission consists of three members: a civil engineer and representatives of two political parties—one in power, the other second highest in number of votes cast. For the technical work of general supervision and formulation of plans the State is divided in this division under division engineers who constitute the right arm of the commission in dealing with the work both of construction and repair of the State and county highways. Ample clerical and engineering forces are provided for this general work, and underneath the division engineer is either a county superintendent in case the Board of Supervisors see fit to appoint one or a district superintendent who shall have charge of more than 5,000 linear miles of highway—the district to be erected and the superintendent to be appointed by State Highway Commission. He concluded by saying that upon the adoption of the statute, after it has been strengthened by the recommendation of the commission, citizens of New York will be well assured that they have a piece of constructive legislation covering the entire subject of highways which will be at least the equal of any highway statute in the United States, and under which the $50,000,-



Secretary Elliott Welcomes Pittsburg Delegation, Headed by Secretary Paul C. Wolff, of the Pennsylvania Motor Federation.

Group of A. A. A. Officials Stand for the Camera.

000 granted by the State and the $35,000,000 contributed by the towns and the counties will be honestly, economically and wisely expended; and that by education and due supervision a great advance will be made in the repair and maintenance of roads.

The discussion of "The Improvement of Town Roads" was taken up by Stephen Ryan, State Road Director of New York State Roads. The speaker deplored the lack of a perfect understanding between automobilists and town officials. He said:

If I stood here for the purpose of addressing a body of automobilists, and them only, I think I would try to convince them that their greatest difficulty is that they do not understand the country people and the difficulties they have to overcome in good road building; and I would also try to convince them that they have got to look to these people for the solution of this problem.

If I stood here to talk to a body of town officers and Grangers, and to them only, I think I would try to convince them that their greatest difficulty is that they do not understand the motives of the automobilists and the good that they have done in creating an interest in this work and in getting the money for improvements.

He then described the financial stringency existing in some towns, quoting instances where good road making was badly handicapped by appropriations that ran as low as $100 a mile. Per contra, the town of East Chester, in Westchester County, New York, has $1,138 a mile with which to work its roads.

Perhaps the most encouraging sign of the times is shown in Mr. Ryan's statement that, in 1899, the first year under the money system, $173,000 was spent in the money system towns for highway purposes. Five years later this had increased to $1,291,000. Last year, including bridges and extraordinary repairs, $3,812,000 was spent and we estimate that next year with all the towns under the money system $6,135,000 will be spent on highways and bridges on town roads.

"The Call for Good Roads and the Propriety and Need for Federal Aid," was handled in a thorough manner by F. A. Derthick, Master of the Ohio State Grange. Mr. Derthick, speaking along lines similar to those of Governor Bachelder, said:

An Enthusiastic Good Roads Advocate in His Apperson.

I look forward to the time when the auto will be of practical service in the country, not only in the transportation of our crops from farms remote from shipping points, but in the transportation of our children to the centralized schools of the future, thus obviating the enforced irksome ride of some hours each day over dirt roads that at times are bottomless. The nation has given aid to railways, which has resulted in developing rich sections of our country and placed the United States in the forefront as a commercial nation. This policy was criticised at the time, but whether right or wrong the policy now seems wise, from a business point of view, as it has added billions of dollars to our national wealth. As a tax asset government aid to railroads proved a good investment, for to say nothing of the vast increase in value of real estate, and consequent swelling of the duplicates of the various States traversed by these assisted railroads, the roads themselves have been no mean contributors in meeting public expenses.

The Motor Parkway, Long Island's new special highway for automobiles only, was well described by A. R. Pardington, general manager of the Parkway. His talk concerning this "Auto Utopian" project was immensely enjoyed by his hearers, especially those representing the automobiling side of the assembly.

D. Ward King of the Missouri State Board of Agriculture told his hearers about the treatment of earth roads, during which the split log idea was brought forward and thoroughly explained.

A. W. Campbell, Deputy Minister of Public Works of the Province of Ontario, spoke interestingly on the new road era in Ontario and told of the good work which has been done there in the past and what is proposed in the future.

Of special interest to the grange and farmers generally was the address of F. N. Godfrey, master of the New York State Grange, who spoke on "Good Roads and Automobiling from the Farmer's Standpoint" and who impressed the need of a give-and-take policy and mutual cooperation on each side.

"The Highways of Massachusetts" were discussed by Harold Parker, chairman of the Massachusetts Highway Commission, and James W. Abbott of Nevada, late U. S. Highway Commissioner for the Rocky Mountain and Pacific Coast States, told of the "Road Problems of the Pacific Coast."

The delegates found the press of business on Wednesday morning so great that it was long after the set hour for final adjournment that the hall was cleared. The last hour of the convention was a crush, but President Hotchkiss managed to push through several important matters calculated to forward the Good Roads movement.

Resolutions were readily passed, calling for a convention of the A. A. A. every year, and the following committee on arrangement was appointed to handle the convention in 1909: Robert P. Hooper of Philadelphia, chairman of the Good Roads Board of the A. A. A.; N. J. Bachelder of Concord, N. H., master of the National Grange; J. H. McDonald of Hartford, Conn., president of the American Roadmakers' Association; Charles T. Terry of New York, chairman of the A. A. A. legislative board; S. D. Waldon of Detroit, representing the National Association of Automobile Manufacturers; W. H. Hotchkiss, president of the A. A. A.; and F. H. Elliott, secretary.

The A. A. A., the National Grange and the Roadmakers' Association by resolution have pledged themselves to work for a Federal automobile law, as well as for favorable good roads legislation in Congress, and a committee of 24 appointed to see that the resolutions won't go the way of the New Year's resolve.

The Currier law, now pending in Congress, was unanimously endorsed and the three associations joined in one resolution condemning harmful use of highways by autoists and other users.

Cincinnati wants the next convention and is putting up a strong fight to gain its point. However, no decision on this point was reached and the question was tabled. A committee of nine was appointed to pass on the claims of rival cities. The convention then adjourned sine die.

Good Roads Demonstration a Great Success.

BUFFALO, July 9.—The practical demonstrations of road making and dust suppression were viewed yesterday by the delegates and visitors of the convention. The committee on arrangements was a bit skeptical as to its ability to line up the required

300 cars, but the automobilists of the city rose gallantly to the occasion and the last machine leaving the Iroquois at two o'clock carried but three passengers—one less than its capacity. The line of cars strung out over 25 miles.

Perhaps the most interesting feature of the trip was the exhibition of state road making near Clarence. Here a road was tested in all its stages from a rough country road to macadam boulevard, newly constructed and smooth as a table, was viewed and felt. A section of road is being built here with state aid. The occupants of the cars saw the stonecrusher in operation, gangs of men and teams at work plowing, grading, hauling material and big rollers pounding the macadam into solid road.

Banquet Brings A. A. A. Convention to a Close.

Notwithstanding that the A. A. A. reliability tourists left this morning, the banquet held at the Iroquois Hotel last night was a pronounced success from the attendance standpoint. More than 150 representatives of the A. A. A., the National Grange, and the American Road Makers' Association sat down to a feast that was good to the palate, but more appetizing to the intellect.

Timothy Woodruff, of New York, the first speaker, said he wasn't used to being an accelerator in anything except political gatherings. "Good Roads," he said, "is the most important problem before the American people to-day, despite the fact that some men believe that the merchant marine is of more vital importance. If you cannot travel at sea under an American flag, you can at least travel under a foreign flag, but the highways of the United States are in such condition that you cannot travel them under any flag. The roads of France are two decades ahead of us. It isn't our fault. It's the fault of environment. Europe has grown through her highways. America has grown through her railroads. We've outstripped Europe in everything we've gone in for. We can outstrip her in time in the matter of highways."

Ex-Governor N. J. Bachelder, of New Hampshire, when called upon, said that the National Grange had been working for good roads for several years and, he added, "It's going to keep on working." Governor Bachelder was introduced as the man who controlled 1,000,000 votes for good roads and good roads legislation.

Mayor Adam, a two-weeks-old automobilist, said that he was a lifelong member of the A. A. A., "from now on," he added with an Irish bull, creating gales of laughter.

James H. MacDonald, the popular highway commissioner from Connecticut, president of the National Road Builders' Association, made the wittiest speech of the evening, in which he mingled sound advice with canny Scotch stories.

Senator Allds, who got one of the heartiest receptions of the evening, spoke from the standpoint of the farmer, saying the latter had just awakened to what good roads meant to them. "We recognize," he said, "that we are the fellows who are going to get the most benefit out of good roads. All you motorists get is a little pleasure out of them, but we are going to get the dollars and cents out of them by being able to haul our goods to the market."

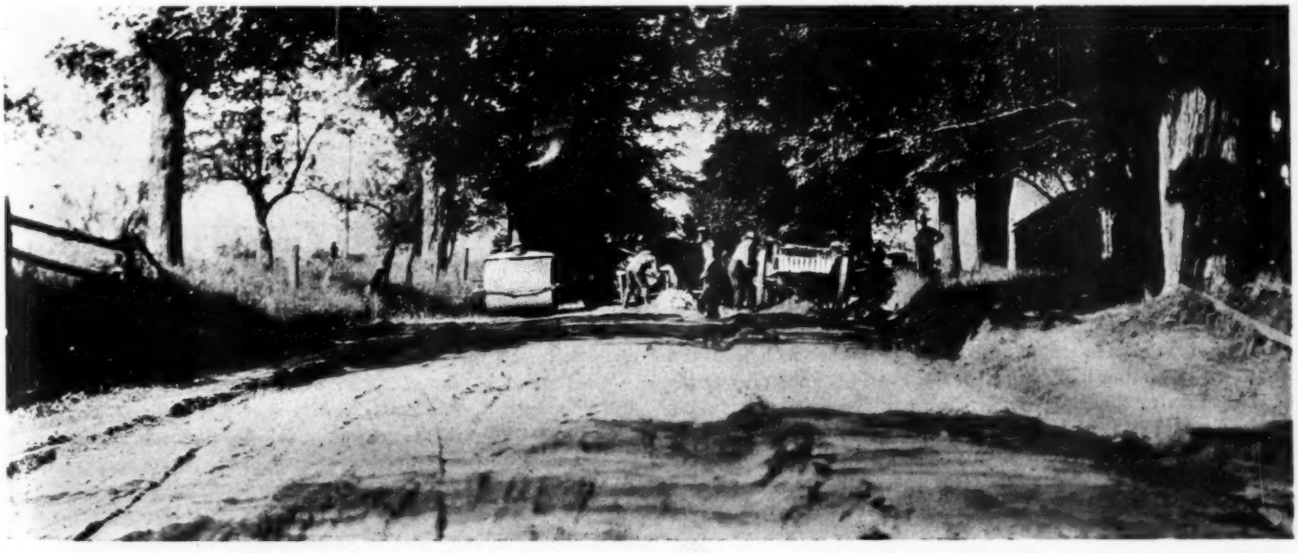
George C. Diehl.
Chairman of the Committee on Road Demonstrations.

E. R. Thomas, called on by Toastmaster Hotchkiss to say a word for the Thomas Flyer in the New York to Paris race, said he hoped the time would soon come when it would be possible for an auto to go through to San Francisco without a broken axle or even so much as a punctured tire. The modest maker of the Thomas Flyer, who was the last speaker of the evening, got a warm reception from the banqueters.

The Automobile Club of Canada was ably represented by the vice-president, U. H. Dandurand, who brought greetings from the Canadian automobilists and invited his American brethren to cross the line early and often.

Charles J. Glidden, "of the world," as Toastmaster Hotchkiss introduced him, sketched briefly his foreign tours and the roads over which they had carried him and expressed his pleasure at being present at a convention which was destined to be productive of so much good to the movement in this country.

At the speakers' table, in addition to Toastmaster William H. Hotchkiss, were Powell Evans, president of the Automobile Club of Philadelphia; U. H. Dandurant, president of the Automobile Club of Canada; Congressman W. W. Cocks, Senator J. P. Allds, ex-Lieutenant-Governor Timothy L. Woodruff, of New York; ex-Governor N. J. Bachelder, of New Hampshire; Mayor J. N. Adam, of Buffalo; Highway Commissioner James H. McDonald, of Connecticut; Neal Brown, president of the Wisconsin State Automobile Association; Charles J. Glidden, the globe-girdler; First Vice-President Lewis R. Speare, of the A. A. A.; E. H. Butler, editor of the Buffalo *News;* E. R. Thomas, national Secretary F. H. Elliott, Harold Parker, A. W. Campbell, George B. Ellis and L. W. Page, director of the Offices of National Public Roads.



Some of the Actual Work of Road Building in New York State That Was Inspected by the Conventioners.

MAKERS AND A. A. A. REITERATE 1908 VANDERBILT RULES

IN response to a suggestion made in Paris to the foreign affairs committee of the American Automobile Association that the action of the foreign clubs in refusing to sanction the Vanderbilt Cup race of this year would be rescinded if the Racing Board of the A. A. A. would hold such race under the so-called Ostend rules, a meeting of the Central Conference Committee, representing the American manufacturing bodies and the American Automobile Association, was held in Buffalo Tuesday last. Among others who attended, including representatives of the N. A. A. M., A. M. C. M. A. and A. A. A., were President Thomas Henderson, General Manager S. A. Miles, and E. R. Thomas, of the National Association of Automobile Manufacturers, and President W. H. Hotchkiss, Chairman Jefferson deMont Thompson, A. R. Pardington and Secretary F. H. Elliott. The makers were also represented by S. D. Waldon and R. D. Chapin.

After a full discussion of the situation, both domestic and foreign, it was unanimously decided that, so far as the Vanderbilt Cup race of this year is concerned, the same should be held under the rules previously announced by the Racing Board of the A. A. A. In the opinion of those present, any other action at this time would be unfair to the American manufacturers, particularly in that it would now be impossible for them to build cars which would conform to the so-called Ostend rules; and, also, in that there is no assurance that the foreign bodies will continue to observe the Ostend rules next year. Subsequently, when the report of the Buffalo proceedings was shown to Alfred Reeves, general manager of the A. M. C. M. A., he unreservedly approved all that had been done. Mr. Reeves is just recovering from a hospital operation, and was unable to be at Buffalo.

The hope was expressed, however, that when a proper representation on the committee which shall frame the future racing rules for international contests is given to the American Automobile Association as the national governing body in the United States, and as representing more motor users than all of the foreign clubs combined, as well as an industry which turns out more cars annually than any other country, it would be possible to arrive at a formula equally satisfactory on both sides of the ocean, and thus to hold future international events under it.

In this connection it may be stated that besides having promises of at least ten representative American entries, the A. A. A. Racing Board is already assured of the entry of four representative foreign cars, namely, a Mercedes and a Benz, which stood, respectively, first and second in the French race last week, and a Hotchkiss and a Renault, thus giving, even at this early date, the Vanderbilt Cup race its old-time international flavor.

The course that has been selected is approximately 25 miles long, and is stated by those who are familiar with it to be the fastest in the world, including, as it will, the completed section of the Long Island Motor Parkway and the State and county roads of Nassau county, within an hour's ride from New York.

A. C. A. "EXPLAINS" THE WHYFORE OF ITS FOREIGN RACE.

From the executive committee of the Automobile Club of America comes a statement as to why it thinks itself justified in running a race at Savannah for the foreign manufacturers, which event, it is averred, "would not have been organized if the American Automobile Association had seen fit to make the rules for the Vanderbilt Cup race accord with the internationally accepted conditions." In other words, the A. A. A. Racing Board should have considered the foreign makers first, and not American makers, an opinion not likely to be accepted here.

It is alleged in the "explanation" that at the recent Dieppe session of the international clubs "an unsuccessful attempt was made by the American Automobile Association to supplant the Automobile Club of America." The exact facts are that no effort whatever was made on the part of the A. A. A. committee at Dieppe to become affiliated in any manner at this time, it being made clear that an arrangement of any character whatever would carry with it the acceptance of the so-called Ostend rules. The province of the special committee was simply to make known to the delegates that it was the A. A. A. which controlled racing in America and had always conducted the Vanderbilt Cup race, and, furthermore, that if any foreign makers participated in the American race, they would have to accept the present rules, unless American makers agreed to modifying them.

The "explanation" is verbose and roundabout, and not in keeping with the facts known to exist, and, taken as a whole, it will accomplish little in relieving the club from the criticism leveled at it from all sides as a result of its present untenable position.

NEW JERSEY CLUB REPUDIATES RUMOR.

According to officers of the New Jersey Automobile and Motor Club, that organization has no idea whatever of resigning from the Associated Automobile Clubs of New Jersey, the State organization of the A. A. A. A meeting of the club is called for to-night, at which the subject will come in for some attention. The source of the rumor is well understood, but the club desires to place itself on record as being in favor of an organization like the A. A. A., which gives a local club local prestige, a State body control in its own State, and the whole framework joined together by national officers elected by the national board of directors selected by the State bodies.

A. L. A. M. STATES IT WILL MAKE DEALERS TOE THE MARK

NEW YORK, July 14.—Although there was no intention of making any public announcement to that effect, at least not for several weeks to come, the report of the fact that the Licensed Association had compelled the Peerless, Olds and Cadillac companies to cancel their agency contracts with the Centaur Motor Company, Buffalo, on account of the latter taking on the Oakland, an unlicensed car, precipitated matters, and the A. L. A. M. is now making it plain that it intends to compel dealers to respect the agency clause in their contracts. In the past, the rule has not been observed very strictly, as there were so few low-priced cars in the licensed fold that the dealer who wished to have sufficient price latitude found it necessary to go outside. But things have been so shaping themselves in the past year that the licensed agent may now find an ample range under the aegis of the Selden mark, and it is the purpose of the Association to see that he thus confines his choice in future.

When seen at the Association headquarters, Assistant General Manager E. P. Chalfant, who is now in charge, confirmed the report, and stated that a quiet but vigorous campaign to compel all licensed dealers to closely observe the agency clause in their contracts was already under way and would be followed up. "The low-priced licensed car is the key to the situation, and, now that we have it, there can be no occasion for any licensed dealer going outside the fold," said Mr. Chalfant. "We have not been in a position to make too much of the agency clause hitherto, but in future it will be rigidly enforced."

PROGRESS OF THE A.A.A. TOUR.

(*Continued from page 76*)

of its springs in the Saturday run. To-day when three miles out a bumper was made from some old tire casings and inner tubes; and when 20 miles out and the only remaining good leaf broke a block of wood and other parts were used in effecting a repair. It got 181 points on time. The Overland roadster No. 110 ran in hard luck, breaking its frame and having to seek a blacksmith shop, where a repair was effected. As yet it is not known what time the car checked in and what is its penalty. According to the rules as interpreted by Chairman Hower at Sunday night's meeting at Bedford Springs a frame or spring can be repaired in a blacksmith shop providing the work is all done by the driver and mechanic. These two may use whatever tools of the blacksmith's they desire and providing no new finished parts are used the work will not be penalized. This law also covered the manufacture on the road to-day of the improvised bumper by the Franklin. In fact, the rules permit of buying a block of rubber and cutting out a crude bumper and fitting it without penalty. It is reported to-night that Overland No. 108, driven by Mrs. Shirley, will withdraw to-morrow. The runabout was debited 102 points on time to-day, which together with the 9 received on Saturday, gives it a total debit of 111 points.

The Hower perfect scores are now reduced to six, consisting of two Pierces, a Reo, a Premier and two Stoddard-Daytons.

The club and team standing to-night is as follows: Buffalo team one, 1,000 points; Buffalo team two, 1,000 points; Chicago Motor Club team one, 1,000 points; Chicago Motor Club, team two, 997.6 points; Rochester Club, team one, not known, perfect previously; Rochester Club, team one, 1,000 points; Bay State Club, 1,000 points; Cleveland, 663 points; Columbus Automobile Club, 1,000 points; Syracuse Club. 980 points. D. B.

FIFTH DAY—HARRISBURG TO PHILADELPHIA.

PHILADELPHIA, July 14.—By contrast with the two preceding days of mountain climbing and bumping the water breaks over the Allegheny and Blue Ridge ranges, to-day's run from Harrisburg was a restful joy ride. A run of 133 miles in 7 hours over such easily navigable stone roads as those of to-day was mere child's play for the cars. The journey was accomplished without a single perfect score car losing its place on the clean slate. In fact, but a single car suffered penalization. The Moline had hard going with its cracked cylinder, which put a pair out of commission, but managed to get into town around 9 o'clock with its two remaining ones doing the work. It had also stopped to mend its radiator. No 19 miles an hour gait over macadam roads will eliminate the American cars of to-day. The contestants, in fact, for the most part arrived from an hour to close to two hours ahead of schedule time. Then there was some lively scorching, in which the non-contesting cars behaved conspicuously. A seat on the rear was not safe enough to save Ben Smith, who rode as mechanic for Billy Hurlbert, to permit his being tossed out of the Garford's tonneau at the pace this road terror was pushing it. He has a cut cheek and a bruised shoulder as his souvenir.

The little fellows, notably the Reos, are holding up uncommonly well. They stood the mountain banging well, and the law will not allow a fast enough pace to permit their maintaining the time schedule. The Quaker City Motor Club met the caravan at Trappe, and escorted it into town. To-night it is giving the tourists a vaudeville smoker at Horticultural Hall. The Philadelphia *Press* was also in hospitable evidence at Trappe with a luncheon for every car.

The run to-day was through beautiful smiling farm lands. That we were in the land of William Penn was evident by demure old women and modest young girls in white lace caps and soft gray or brown Quaker garb, waving from the porches. The toll-gates were at short intervals, and were picturesque with their grape and flower arbors. In the region of Lancaster, not a few long-haired Mennonites were encountered, and around Reading the Pennsylvania Dutch greeted the tourists with a wee bit of a smile looming through their characteristic stolidity.

The caravan came into town by way of the beautiful Chestnut Hill suburbs, and then down Broad street, through "Automobile Row," to the night stopping place at the Walton. Tom Fetch, Ralph Estep and the freelance Packard made a detour at Collegetown to visit Washington's camp at Valley Forge, which the routemakers had cut out, just as they did Gettysburg, more's the pity. J. C. W.

Perfect Scores for All on the Fifth Day.

PHILADELPHIA, July 14.—For the first time since the start of the tour all of the Glidden and Hower contestants have made the run with perfect scores, there being not a single example of a car arriving late at the checking station or having to make a replacement of parts. This does not include No. 102 Moline, that cracked two cylinders yesterday, and it is not expected to contest for the Hower trophy after to-day. At 8 o'clock to-night it has not arrived, but a wire has been received announcing it at Reading, Pa. Owing to this perfect score day's run over 133.5 miles of rolling macadam roads with occasional water breaks, the team scores in the Glidden contest remain as they were yesterday, which is as follows:

Automobile Club of Buffalo, team 1	1000	points
" " " " " 2	1000	"
Chicago Motor Club, " 1	1000	"
" " " " 2	937 2-3	"
Rochester Automobile Club, " 1	666.6	"
" " " " 2	1000	"
Bay State Automobile Club	1000	"
Cleveland Automobile Club	664	"
Columbus Automobile Club	1000	"
Automobile Club of Syracuse	666.6	"

The Hower standing is as follows:

No. 100	Great Arrow	1000	"
" 101	Reo	1000	"
" 102	Moline	949	"
" 103	Great Arrow	1000	"
" 104	Premier	1000	"
" 105	Gearless, withdrawn first day.		
" 106	Franklin, no points, continues as non-contestant.		
" 107	Stoddard-Dayton	1000	"
" 108	Overland, withdrawn, continues as non-contestant.		
" 109	Stoddard-Dayton	832	"
" 110	Overland	698	"
" 111	" withdrawn, continues as non-contestant.		
" 112	Stoddard-Dayton	1000	"
" 113	Blomstrom, withdrawn, continues as non-contestant.		

For Glidden certificates:

No. 16	Stevens-Duryea	1000	"
" 17	" "	1000	"

Although to-day's run is bereft of penalizations, not a few unusual incidents have arisen to be of sufficient import to satisfy the gossipers of the tour for one evening. William Hurlburt's No. 31 Garford, when making too fast time on the stretch of road to-day struck a water-break with sufficient impact to hurl one of the tonneau passengers out, who, landing rather heavily on the ground, suffered a slight scalp wound and a bruised shoulder, neither of which was sufficient to prevent his continuing his tour. The accident was entirely due to reckless driving, which was also noticeable on the part of Van Tyne, driver of No. 29 Garford.

Oakland Car No. 28, one of the contestants in the Chicago Motor Club Team No. 2 for the Glidden Trophy, in taking a water-break too quickly bent the front axle badly. The driver and mechanician sought a blacksmith shop, where the axle was removed, heated, reformed and replaced in 52 minutes.

The Marmon team is making a most favorable impression, as is the combination Premier and Reo teams. The Chicago Motor Club Team No. 1, composed of two Haynes cars and an Oldsmobile, is still in the perfect score category, the cars having run so far without any attention further than the usual overlooking and lubrication. D. B.

LATEST NEWS A. A. A. TOUR.

SIXTH DAY.

MILFORD, PA., July 15.—To-night six of the twelve running days of the Glidden tour are over, and 706.8, or 42 per cent., of the total distance of 1,669.7 miles has been covered. Of the ten teams struggling for the Glidden trophy, six are running with perfect scores, these being as follows: Buffalo team of three Pierce-Arrows; Buffalo team two, comprised of two Premiers and a two-cylinder Reo; Chicago Motor Club team No. 1, made up of two Haynes and Oldsmobile; Rochester club team two, of three Studebakers; the Bay State club team of three Marmons, and the Columbus club team of three Peerless cars. Marmon and Studebaker have teams all of their own, and Haynes, Oldsmobile, Premier and Reo are the four other makes represented. So that with the tour half over there are eight makes of cars still on the ground floor and on equal footing for the trophy. The summarized club standing is:

Buffalo	Pierce	1,000	points
Buffalo	Premier-Reo	1,000	"
Chicago	Haynes-Oldsmobile	1,000	"
Rochester	Studebaker	1,000	"
Bay State	Marmon	1,000	"
Columbus	Peerless	1,000	"
Chicago	Oakland-Rainier	997.6	"
Rochester	Thomas-Gaeth-Selden	666.6	"
Cleveland	Garford	664	"
Syracuse	Franklin	666.6	"

The two Stevens-Duryea cars running for Glidden certificates are in the perfect score brigade still. Of the fourteen original Howers, only five are perfect, namely: two Pierce cars, two Stoddard-Daytons and one Premier.

The tour now has settled to perfection and regularity in every detail; the drivers are not beating it except some of those who are hopelessly out of it, and everybody is as methodical as if living at a Quaker home. The grandstand work of former years is absent, and it is a fight to the finish among all of the contestants. Only one of the observers has dropped out because of sickness, he being the one appointed by Mrs. Cuneo. But three women are in the tour: Mrs. Andrew Cuneo, who drives the Rainier, and with her Mrs. Berwick, and Mrs. Howard Marmon, who rides with her husband in a Marmon car.

In the Philadelphia to Milford run the first car rushed into Milford and stored at the official headquarters, the Bluff House, at 12:35 P.M. It had been a day of excellent macadam roads, and delightful scenes surprised the tourists, who were treated to a ride that will long be in their memory.

The first car was checked out at 7 o'clock sharp, and the day's running time was 6 hours 45 minutes. There was not five minutes of bad road the whole distance. The first 50 miles traversed are over country varying from level to hilly and the balance of the trip, which led through the scenically beautiful Delaware Water Gap, was over narrow roads, with steep hills and numerous sharp, dangerous turns. Despite this, every car in the run came through at high speed. The reception all along the line was most enthusiastic and the summer guests from Delaware Water Gap were intensely enthusiastic in their welcome. The occupants of the cars were given bouquets of flowers, as well as eatables and drinkables.

There were a number of lame ducks strewn along the road, but none of these were in serious difficulties. No. 98, the Premier Pilot car, went down and out a short distance out of Nazareth. The road is being repaired, and the car came along at high speed and dashed into some loose rock that had been piled in the center of the road. The front axle was broken off short. D. B.

PRESIDENT TISCHBEIN HERE FOR SHORT STAY.

Willy Tischbein, president of the Continental Caoutchouc and Gutta Percha Company, of Hanover, Germany, as well as of the Continental Caoutchouc Company of New York, has arrived from Europe and will spend a short time in the United States in connection with the affairs of the Continental Company. He had some interesting observations to make.

NEWS FROM AMERICA'S RUBBER CENTER.

AKRON, O., July 13.—The Diamond Rubber Company is preparing to make extensive enlargements of its plant, having purchased 14 houses and lots on the south side of Jackson street, opposite from the present plant. The officers of the company are reticent about their plans, but they have already started one building for a machine shop, and have submitted plans to the city for an overhead bridge on the street. The company has been crowded for space throughout the recent busy season in tire manufacturing. It is also the plan of the company to move the Marsh factory here from Columbus, and it is thought that the new buildings are designed for the manufacture of the rims. The new plans include an outlet to the next street south of Bartges street.

The officers of the Motz Clincher Tire Company are well satisfied with business of the past year, and favorable reports were heard at the annual meeting held this week. The following directors were chosen: Charles Motz, Gus Burkhardt, E. J. Alderfer, Nicholas Seil, Howard Haupt, and Paul E. Bertsch. The directors chose officers as folloows: President, Charles Motz; vice-president, Gus Burkhardt; secretary and treasurer, Nicholas Seil, Akron thus being well represented.

It is not a matter of common knowledge that women engage in rubber manufacturing in this city, as well as in others, to a large extent, and that there are female tire makers in this city to the number of 35. Valuable and interesting statistics have been gathered by the State Labor Commissioners on the rubber and other tire industries in this city, and the most recent report shows 653 females engaged in the manufacture of rubber goods in seven rubber plants of Akron. What are known as rubber workers proper number 487, and their average annual wage during 1906 was $402.99. The average annual wage of the tire makers that year was $378, and the other female rubber workers and the annual pay was as follows: Forewomen, two; $368.40; helpers, five; $230.25; laborers, sixty-eight; $316.40; pinchers, eighteen; $385.02; packers, six; $351; press workers, fifteen; $280.

BRISCOE'S TRANSCONTINENTAL CHALLENGE.

For the first time in several years the Maxwell cars have not been entered in the A. A. A. tour for the Glidden trophy, and coupled with a statement of the reasons therefor, Benjamin Briscoe, president of the Maxwell-Briscoe Motor Company, issues a *defi* to the winning car. The test, should it be carried into effect, is to consist of an endurance run from Coast to Coast for $2,500 a side, the winner to dispose of the $5,000 purse, and the challenge is aimed at the car which comes out victorious in the tour now under way. The principal reason for the non-entry of a Maxwell team this year is the alleged discrimination against the light-low-priced car of the present revised rules, so that the conditions of the challenge are that it be run under the Glidden tour rules of 1907.

CHALMERS-DETROITS TO HAVE MARSH RIMS.

DETROIT, July 13.—What is doubtless the largest detachable rim contract ever placed by a single manufacturer of automobiles has just been negotiated by the Chalmers-Detroit company with the Diamond Rubber Company, Akron, O. It calls for sufficient rims to supply the output of 2,500 Chalmers-Detroit, 30-horsepower cars for 1909. It is said to be one of the first, if not the initial large contract for 1909 accessories. The sale of Marsh rims this year has been practically doubel that of 1907 and indications at present point to a much increased demand from now on.

A new automobile factory is to be located at Moline, Ill. It is the Velie Motor Vehicle Company, and will manufacture gasoline, electric and steam cars. All the promoters are connected with the Velie Carriage Company. They are W. L. Velie, O. E. Mansur and S. Harper.